A2500-6 U 11/83

paper paperboard wood pulp capacity

fiber consumption
1982-1985 with additional data for 1986

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Growth

Based upon individual reports from producers of paper and paperboard, total capacity is expected to reach 74,084,000 tons in 1986, a 3,270,000 ton increase over the capacity in operation during 1983. These figures suggest an average annual increase of 1.5% during the 1984-1986 period. Although trailing the 2.3% increase experienced during the past sixteen years, the cost of these expansions plus replacement and modernization outlays total about six billion dollars a year. Pulp capacity during the 1984-1986 period is expected to increase to 58,696,000 tons in 1986 from 1983's average capacity of 56,202,000 tons. The addition of 2,494,000 tons of new capacity represents an average growth rate of 1.5% a year, the same as in paper and paperboard.

As Table 1 shows, additions to paper capacity are expected to exceed new capacity changes in paperboard. The highest rate of growth is in the printing and writing and tissue categories, with average annual gains of 2.8% and 2.3% respectively.

Expansion in unbleached kraft paperboard, at 1.4% a year, represents the fastest growth in the packaging categories. (Annual additions to capacity for paper and paperboard in total are summarized in Table 4.)

New machines are expected to provide 1,687,000 tons, or 52% of all new paper and paperboard capacity in the 1984-1986 period. Improvements on existing machines, after removing the capacity of machines taken out of production in 1982 and 1983, will provide the remaining 1,583,000 tons.

Note: Unless stated otherwise, all references to paper and paperboard and wood pulp exclude construction grades.

TABLE 1:
GROWTH TRENDS IN CAPACITY

Thousands short tons

GRADES	ADDITIONS 1968-1983		ADDITIONS 1984-1986	
	16 YEAR INCREASE	AVERAGE ANNUAL GROWTH	3 YEAR INCREASE	AVERAGE ANNUAL GROWTH
TOTAL ALL GRADES PAPER & PAPERBOARD	**20,993**	**2.1%**	**3,274**	**1.5%**
TOTAL PAPER & PAPERBOARD	**21,964**	**2.3**	**3,270**	**1.5**
TOTAL PAPER	**12,043**	**2.6**	**2,020**	**1.9**
NEWSPRINT	2,791	4.2	231	1.3
PRINTING & WRITING	7,039	3.1	1,554	2.8
PACKAGING & IND. CONV.	518	0.6	(127)	(0.7)
TISSUE	1,695	2.5	363	2.3
TOTAL PAPERBOARD	**9,921**	**2.1**	**1,250**	**1.2**
UNBLEACHED KRAFT	7,093	3.3	745	1.4
SOLID BLEACHED	832	1.4	155	1.2
SEMICHEMICAL	1,648	2.4	97	0.6
RECYCLED	347	0.2	254	0.9
CONSTRUCTION GRADES	**(971)**	**(1.8)**	**4**	**—**
TOTAL ALL GRADES WOOD PULP	**17,128**	**2.2%**	**2,494**	**1.4%**
TOTAL WOOD PULP (exc. pulp for Construction Paper & Board)	**17,197**	**2.3**	**2,494**	**1.5**
DISSOLVING & SPECIAL ALPHA	33	0.1	—	—
SULPHITE	(949)	(2.7)	(15)	(0.3)
SULPHATE & SODA*	15,377	2.9	2,139	1.7
SEMICHEMICAL	860	1.3	72	0.5
MECHANICAL	1,876	2.4	299	1.7
WOOD PULP FOR CONSTRUCTION PAPER & BOARD	**(69)**	**(0.3)**	**—**	**—**

*includes screenings

Not adjusted for rounding differences.

Comparison With Previous Surveys

The relative stability in capacity figures reported in recent surveys is reflected in Table 2, which compares the results of past surveys with current figures. In general, capacity figures have been lowered during the past five years, but the changes have been relatively small. These changes have occurred primarily as a result of unanticipated shutdowns of existing mills and paper machines. Such capacity reductions tend to be understated in any given year in the API reports, since final decisions to shut down unprofitable facilities are generally made shortly before operations are discontinued. Furthermore, the API removes the capacity of idled plants only after a period of time, when it becomes clear that the facility will not be reopened.

For example, Table 2 shows that the 1982 capacity figure, which was first reported in the 1979 survey, was estimated to be about 70.6 million tons; the most recent survey indicates an actual level of 70.1 million tons for that year. Similar patterns of modest reductions appear in the figures estimated for 1983-1985 in succeeding surveys.

TABLE 2:
COMPARISON OF CAPACITY FORECASTS FOR TOTAL PAPER & PAPERBOARD

Thousands short tons

SURVEY PUBLISHED IN:	FORECASTS				
	1982	1983	1984	1985	1986
1979	70,564				
1980	70,406	71,565			
1981	70,355	71,833	72,964		
1982	70,197	71,155	72,455	73,806	
1983	70,086*	70,814	71,965	73,054	74,084
RANGE HIGHEST TO LOWEST	**0.1%**	**0.4%**	**0.7%**	—	
	0.7%	**1.4%**	**1.4%**	**1.0%**	—

*Actual

Multigrade Machines

Capacity estimates in this survey represent the aggregated plans for more than 250 companies to install new machines, rebuild or improve machines already in place, retire uneconomic facilities, and make changes in grade mix and basis weights. Participants in the survey account for approximately 95% of all wood pulp and 90% of all paper and paperboard produced in the U.S. and include both member and nonmembers of the API.

The figures on capacity by grades reported in the survey are the total of individual mill reports received by the API. They reflect company estimates of the tonnage of a machine's capacity that is allocated to various grades. There are many machines whose output includes more than one grade of paper, as Table 3 shows. Economic conditions and changing market requirements will influence how the machine output is spread among individual grades. This estimated allocation is provided by individual members, and the API does not modify company inputs.

When the product mix on these multigrade machines is changed, the capacity of each affected grade is either increased or decreased in relationship to its newly allocated quota in the machine's revised production schedule. Such product changes are known in the industry as "swings". In this survey, the capacity of these "swing" machines in the base year (in this case 1982) is allocated among grades based on their actual experience in 1982. Estimates of planned "swings" for the future are provided by individual companies.

Regional Consumption

Table 5 shows the regional distribution of total capacity in 1982, and the distribution of expected growth in capacity during the four year period 1983-1986, for each of the four major regions of the U.S. The South, with 53.0% of all paper and paperboard capacity in 1982, will increase this already dominant share and provide 62.3% of all new capacity over the next four years. Southern wood pulp capacity, which now comprises 70.4% of the U.S. total, will account for 84.9% of all new increases. The Central region will show a modest increase in share of total capacity for both paper, paperboard and wood pulp, while both the Northeast and West will experience much less capacity growth than their existing share of U.S. totals.

TABLE 3:
GRADES PRODUCED ON MULTIGRADE MACHINES IN 1983

PRINCIPAL GRADE PRODUCED*	ALL MACHINES IN INDUSTRY	MACHINES IN SAMPLE	MACHINES MAKING OTHER GRADES	EXAMPLES OF OTHER GRADES PRODUCED
PAPER				
NEWSPRINT	44	38	10	Uncoated Groundwood
UNCOATED FREE SHEET	245	217	94	Bleached & Specialty Packaging, Special Industrial, Bleached Bristols
UNBLEACHED KRAFT PACKAGING	50	40	19	Unbleached Kraft Linerboard, Special Industrial
TISSUE	231	51	5	Specialty Packaging
PAPERBOARD				
UNBLEACHED KRAFT	72	54	16	Unbleached Kraft Packaging
SOLID BLEACHED	30	23	22	Bleached Bristols, White Pulps

*Machines producing these grades more than 50% of total operating hours.

Note: Table is based on machine operating hours reported to the API for the first 39 weeks of 1983.

TABLE 4:
ANNUAL CAPACITIES 1970-1986

Thousands short tons

YEAR	ANNUAL CAPACITY		CAPACITY ADDITIONS DURING YEAR		PERCENT INCREASE	
	PAPER & PAPERBOARD	ALL GRADES	PAPER & PAPERBOARD	ALL GRADES	PAPER & PAPERBOARD	ALL GRADES
1970	53,260	57,195	1,140	1,221	2.2%	2.2%
1971	54,136	58,141	876	946	1.6	1.7
1972	55,873	59,965	1,671	1,824	3.1	3.1
1973	58,164	62,284	2,291	2,319	4.1	3.9
1974	59,527	63,779	1,363	1,495	2.3	2.4
1975	60,140	64,369	613	590	1.0	0.9
1976	61,307	65,673	1,167	1,304	1.9	2.0
1977	62,004	66,459	697	786	1.1	1.2
1978	63,091	67,419	1,087	960	1.8	1.4
1979	64,615	69,033	1,524	1,614	2.4	2.4
1980	66,368	70,716	1,753	1,683	2.7	2.4
1981	68,172	72,255	1,804	1,539	2.7	2.2
1982	70,086	73,118	1,914	863	2.8	1.2
1983F	70,814	73,710	728	592	1.0	0.8
1984F	71,965	74,862	1,151	1,152	1.6	1.6
1985F	73,054	75,953	1,089	1,091	1.5	1.5
1986F	74,084	76,984	1,030	1,031	1.4	1.4

F—Forecast

TABLE 5:
REGIONAL DISTRIBUTION–CAPACITY & CHANGES

GRADES	NORTHEAST		CENTRAL		SOUTH		WEST	
	SHARE OF U.S. CAPACITY 1982	SHARE OF U.S. CAPACITY CHANGES 1983-1986*	SHARE OF U.S. CAPACITY 1982	SHARE OF U.S. CAPACITY CHANGES 1983-1986*	SHARE OF U.S. CAPACITY 1982	SHARE OF U.S. CAPACITY CHANGES 1983-1986*	SHARE OF U.S. CAPACITY 1982	SHARE OF U.S. CAPACITY CHANGES 1983-1986*
PAPER & PAPERBOARD TOTAL†	**15.9%**	**11.8%**	**16.3%**	**17.5%**	**53.0%**	**62.3%**	**14.8%**	**8.4%**
NEWSPRINT	8.9	—	2.5	—	57.3	79.6	31.3	20.4
PRINTING & WRITING	33.2	17.3	29.6	17.0	29.2	58.7	8.0	7.0
TISSUE	31.4	20.3	24.7	48.0	27.0	24.5	16.9	7.2
UNBL. KRAFT PAPERBOARD	—	—	—	—	84.0	94.6	16.0	5.4
SEMICHEMICAL PAPERBOARD	1.9	—	31.6	204.4	52.4	(152.2)	14.1	47.8
WOOD PULP TOTAL†	**7.8%**	**1.3%**	**6.3%**	**10.3%**	**70.4%**	**84.9%**	**15.5%**	**3.5%**
SULPHATE & SODA	5.7	1.2	3.2	5.5	76.2	89.2	14.9	4.1
SEMICHEMICAL	10.3	14.8	28.8	75.7	48.5	(185.1)	12.4	(5.4)
MECHANICAL	21.0	(0.2)	10.8	28.4	45.9	75.1	22.3	(3.3)

**Percent change in four year period*
†Total of grades shown

TABLE 6:
FIBER SOURCES FOR PAPER & PAPERBOARD MANUFACTURE

Thousands short tons

GRADES	1982 ANNUAL TONS	1982 PERCENT	1983 ANNUAL TONS	1984 ANNUAL TONS	1985 ANNUAL TONS	1986 ANNUAL TONS	1986 PERCENT
TOTAL CONSUMPTION	**63,060**	**100.0%**	**68,403**	**72,203**	**73,859**	**74,866**	**100.0%**
PRIMARY FIBERS	**28,795**	**45.7**	**30,928**	**32,571**	**33,549**	**33,740**	**45.1**
WOOD PULP	28,795	45.7	30,928	32,571	33,549	33,740	45.1
SECONDARY FIBERS	**34,265**	**54.3**	**37,475**	**39,632**	**40,310**	**41,126**	**54.9**
WOOD PULP	19,196	30.4	20,878	21,897	21,995	22,494	30.0
RECYCLABLE PAPER*	14,620	23.2	16,100	17,236	17,799	18,109	24.2
OTHER	449	0.7	497	499	516	523	0.7

Note: Consumption for 1984–1986 assumes capacity levels of production.

**Includes the following tonnage consumed in the manufacture of molded pulp products: 1982, 187,000 tons; 1983, 180,000 tons; 1984-1986, 203,000 tons.*

Raw Material Consumption

The recession-induced cutback in the production of paper and paperboard in 1982 is reflected in reduced levels of raw materials consumed in the manufacture of paper and paperboard. Total consumption in 1982 declined by 3,921,000 tons, or 5.9% from 1981, with wood pulp, down 3,181,000 tons, comprising the largest component of the shortfall. Recyclable paper consumption in 1982 declined by 597,000 tons, or 3.9%, while consumption of other vegetable fibers declined by the remaining 143,000 tons. A strong increase in raw material consumption is expected in 1983 as the production of paper and paperboard returns to more normal levels in relation to economic activity.

Table 6 shows that wood pulp made from manufacturing and forest residues, together with recyclable paper and other secondary fibers, comprised more than 54% of all furnish for paper and paperboard manufacture in 1982.

Recyclable paper is expected to increase its share of total fiber consumption from 23.2% in 1982 to 24.2% in 1986, while wood pulp manufactured from residues will decline slightly from 30.4% to 30.0%.

Paper and Paperboard Grades

Newsprint

After the installation of a new 225,000 ton newsprint machine in 1983, no further new machine installations are expected during the survey period. Capacity increases after 1983 will total only 231,000 tons, a very modest gain after a five year period of spectacular growth during which U.S. mills increased their total newsprint capacity by 1,644,000 tons, or a full 40%.

Canadian newsprint mills still provide about 57% of the domestic consumption of newsprint. According to the most recently published capacity report of the Canadian Pulp and Paper Association, Canadian mills are planning increases totaling 441,000 tons over the next three years or about 1.3% annually.

Printing and Writing Papers

Consistent with the trends shown in last year's survey, printing and writing paper capacity will expand at a faster rate than any other major segment of the pulp and paper industry. Net additions through 1986 will total 1,554,000 tons, averaging 2.8% a year. During the same period, capacity for all grades of paper will increase at a lower 1.9% average annual rate. Uncoated free sheet papers will provide 1,090,000 tons of all new printing and writing capacity and will reach a level of 10,269,000 tons in 1986. Coated papers, both groundwood and free sheet, will provide 457,000 additional tons. Almost no growth in capacity is reported for the remaining printing and writing grades which include uncoated groundwood, bleached bristols, cotton fiber and thin papers.

Kraft Packaging Papers

The relative ease with which certain machines can swing between the production of unbleached kraft packaging paper and unbleached kraft linerboard, provides a major service to consumers, since it enables the industry to adjust quickly and efficiently to changes in market conditions without costly retooling or delays in shipments.

On the other hand, swing machines present a problem in estimating capacity levels, and many companies find it difficult to anticipate machine allocations three and four years into the future. The effect of swings on kraft paper capacity estimates can be quite large since the capacity base for these papers is only four million tons, or about one quarter of the sixteen million ton base for kraft linerboard.

In addition, swings in production between kraft paper and linerboard affect tonnage figures because paper is lighter in weight than linerboard. In this survey, capacity for unbleached kraft papers is expected to decline from 4,091,000 tons in 1982 to 3,844,000 tons in 1986. With the exception of some shut down capacity which has been removed from the 1982 - 1984 estimates, almost all of the 247,000 ton reduction is due to planned swings of machine production to kraft linerboard.

Tissue

With three new machines scheduled for start-up between 1984 and 1986, and with planned improvements to machines now in place, capacity for tissue grades is expected to increase by 363,000 tons over the next three years. These capacity gains will bring the total industry capacity for tissue papers to 5,545,000 annual tons in 1986 and will represent an average annual growth rate of 2.3%. We have removed from these estimates capacities of twenty five older machines, totaling 278,000 annual tons, which were shut down between 1980-1983.

Unbleached Kraft Linerboard

Capacity for unbleached kraft linerboard is now expected to reach 17,003,000 tons, or 46% of total paperboard capacity, in 1986. This expansion, which totals 737,000 net tons over the next three years, includes anticipated swings of machine production from kraft paper to kraft linerboard, rebuilds and improvements of existing machines and one new kraft liner mill.

It should be borne in mind that several companies have announced major linerboard projects as being under serious consideration and that existing lead time in the industry could permit other projects to be brought into production by 1986.

NOTE: A new 315,000 ton kraft linerboard machine, scheduled to come into production in late 1985, was announced after the survey print deadline and is not included in the tabular material in this report. As presently planned, production on an existing machine will be temporarily curtailed pending an anticipated rebuild, and the net increase in capacity in 1986 will be approximately 83,000 tons. This increase will not change the 1.5% average annual growth rate in paper and paperboard capacity for the 1984-1986 period, as shown in Table 1, but will slightly increase the comparable growth rate for unbleached kraft paperboard from 1.4% to 1.5% annually.

Recycled Paperboard

Capacity for recycled paperboard is expected to increase 254,000 tons from 1983 to 1986, a rate of growth averaging just under 1% annually. This increase, which will bring the industry total to 9,099,000 tons in 1986, is net of 189,000 tons of idle capacity removed from our estimates in the years 1982 and 1983.

It should be noted that the estimates for these grades include some 235,000 tons of capacity for an idle mill whose future is considered to be uncertain.

Wood Pulp Grades

Dissolving Pulp

The capacities of the nine U.S. mills which produce dissolving and special alpha pulps have remained almost unchanged during the last twenty years, and no new capacity changes are reported for the three future years covered in this survey. Producers of these non paper grade pulps do have a limited option to swing part of their production to paper grade sulphite or sulphate pulps. Although sizable swings of this type have occurred in recent years, none are anticipated during this survey period.

Sulphate and Soda Pulps

Plans to expand production of bleached and semibleached sulphate pulps, whose end uses are mostly in printing and writing papers and food packaging paper and paperboard, should add 1,900,000 tons of new capacity to the industry base during the 1984-1986 period. This substantial increase, averaging 2.9% annually, represents the highest rate of growth among the major wood pulp categories. In marked contrast, capacity for unbleached sulphate pulp, used in the manufacture of containerboard and kraft packaging papers, will grow by only 240,000 tons, or a 0.3% annual average.

In total, capacity for sulphate pulps will slightly increase their dominant share of all wood pulp produced in U.S. mills.

Market Pulp

Bleached sulphate pulp capacity, which in 1983 comprises 72% of total market pulps, will account for all of the 741,000 tons of growth in capacity between 1984 and 1986. The increase, which averages 4.6% annually, will include two new greenfield pulp mills scheduled to come onstream during the period, as well as significant increases in existing mills.

Norma Pace

Norma Pace
Senior Vice President
November, 1983

capacity summary 1982-1986 annual

Practical Maximum Basis
Thousands short tons

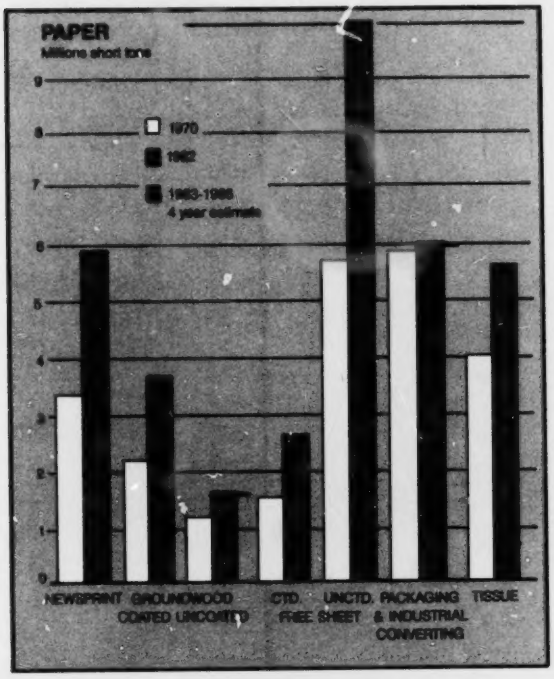
GRADES	1982	1983	1984	1985	1986*
TOTAL ALL GRADES	**73,118**	**73,710**	**74,862**	**75,953**	**76,984**
Total Paper & Paperboard	**70,086**	**70,814**	**71,965**	**73,054**	**74,084**
Total Paper	**34,665**	**35,211**	**35,973**	**36,723**	**37,231**
NEWSPRINT	5,654	5,748	5,927	5,954	5,979
PRINTING WRITING & RELATED	17,809	18,249	18,849	19,482	19,803
Uncoated Groundwood	1,655	1,642	1,622	1,621	1,622
Coated Groundwood	3,242	3,452	3,598	3,667	3,698
Coated Free Sheet	2,274	2,402	2,487	2,550	2,613
Uncoated Free Sheet	9,039	9,179	9,554	10,044	10,269
Cotton Fiber	161	166	169	171	171
Thin Papers	369	360	362	363	365
Solid Bleached Bristols	1,069	1,049	1,058	1,065	1,066
PACKINGING & IND. CONV.	6,076	6,032	5,961	5,915	5,905
Unbleached Kraft	4,091	4,001	3,911	3,865	3,844
Bleached Packaging & Ind. Conv.	553	572	573	561	561
Specialty Packaging	527	540	548	553	559
Special Industrial	906	918	929	936	941
TISSUE	5,125	5,182	5,236	5,371	5,545
Total Paperboard	**35,421**	**35,603**	**35,992**	**36,332**	**36,853**
UNBLEACHED KRAFT	17,402	17,501	17,671	17,913	18,246
of which Kraft Linerbroad	16,032	16,266	16,430	16,670	17,003
SOLID BLEACHED	4,123	4,100	4,166	4,211	4,255
SEMICHEMICAL	5,207	5,156	5,218	5,240	5,253
RECYCLED	8,690	8,845	8,937	8,969	9,099

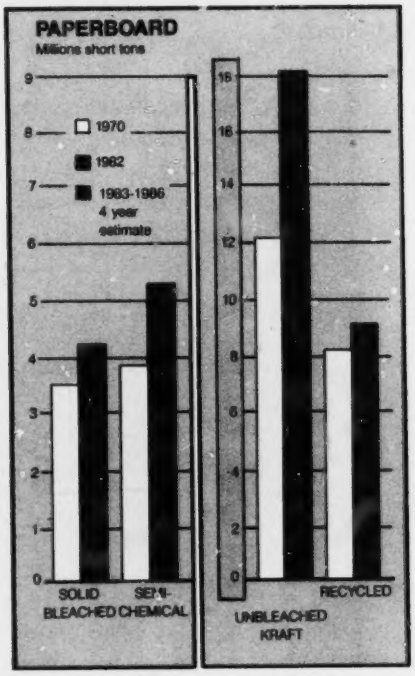
Total Construction Paper & Board and Other	**3,032**	**2,896**	**2,897**	**2,899**	**2,900**

**Capacity additions presented here for 1986 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

Totals not adjusted for rounding differences.

capacity/annual growth comparison





capacity reductions

PAPER AND PAPERBOARD MILLS AND MACHINES SHUT DOWN

Thousands short tons

Grades	1970-1975 Number of Machines	1970-1975 Number of Complete Mills	1970-1975 Annual Capacity	1980-1982 Number of Machines	1980-1982 Number of Complete Mills	1980-1982 Annual Capacity Removed from Survey	1980-1982 Annual Capacity Not Removed from Survey
TOTAL	**183**	**56**	**3,514**	**191**	**86**	**4,705**	**666**
Paper & Paperboard							
Newsprint	—	—	—	2	—	59	—
Printing-Writing	68	13	1,062	31	5	602	154
Pkg. & Ind. Conv.	24	6	222	22	8	301	40
Tissue	24	8	250	28	12	264	41
Unbl. Kraft	2	—	128	6	—	792	—
Bl. Kraft	2	—	61	—	—	—	—
Semichemical	6	2	248	8	2	458	106
Recycled	49	23	1,362	25	12	653	314
Construction Paper & Board	8	4	181	69	47	1,576	11

Grades	1976-1979 Number of Machines	1976-1979 Number of Complete Mills	1976-1979 Annual Capacity	1983-1986 Number of Machines	1983-1986 Number of Complete Mills	1983-1986 Annual Capacity Removed from Survey	1983-1986 Annual Capacity Not Removed from Survey
TOTAL	**106**	**28**	**2,621**	**16**	**4**	**260**	**197**
Paper & Paperboard							
Newsprint	3	1	231	—	—	—	—
Printing-Writing	27	3	468	6	—	73	45
Pkg. & Ind. Conv.	24	4	357	4	—	123	—
Tissue	16	5	154	2	2	14	10
Unbl. Kraft	1	1	240	—	—	—	—
Bl. Kraft	2	1	162	—	—	—	—
Semichemical	2	—	145	1	—	—	47
Recycled	20	6	645	3	2	50	95
Construction Paper & Board	11	7	219	—	—	—	—

Shutdowns represent machines and mills reported to the API as permanent or indefinite closures and have been removed from capacity totals. Not all of the facilities have been dismantled and some portion of their productive capacity could be restored.

capacity summary 1982-1986 annual

Practical Maximum Basis
Thousands short tons

GRADES	1982	1983	1984	1985	1986*
TOTAL ALL GRADES WOOD PULP	**57,638**	**57,690**	**58,497**	**59,640**	**60,184**
Total Wood Pulp (exc. pulp for Construction Paper & Board)	**56,125**	**56,202**	**57,009**	**58,152**	**58,696**
DISSOLVING	1,606	1,604	1,604	1,604	1,604
CHEMICAL PAPER GRADES	43,971	44,082	44,630	45,746	46,205
SULPHITE PAPER GRADES	1,780	1,743	1,717	1,727	1,728
SULPHATE & SODA PAPER GRADES	42,191	42,338	42,913	44,019	44,477
Bleached & Semibleached Softwood	12,052	12,229	12,540	13,011	13,159
Bleached & Semibleached Hardwood	8,705	8,877	9,151	9,592	9,847
Unbleached	21,435	21,232	21,222	21,416	21,472
SEMICHEMICAL	4,734	4,587	4,632	4,644	4,659
MECHANICAL	5,780	5,900	6,114	6,128	6,199
SCREENINGS	34	30	30	30	30
Total Wood Pulp for Construction Paper & Board†	**1,513**	**1,488**	**1,488**	**1,488**	**1,488**

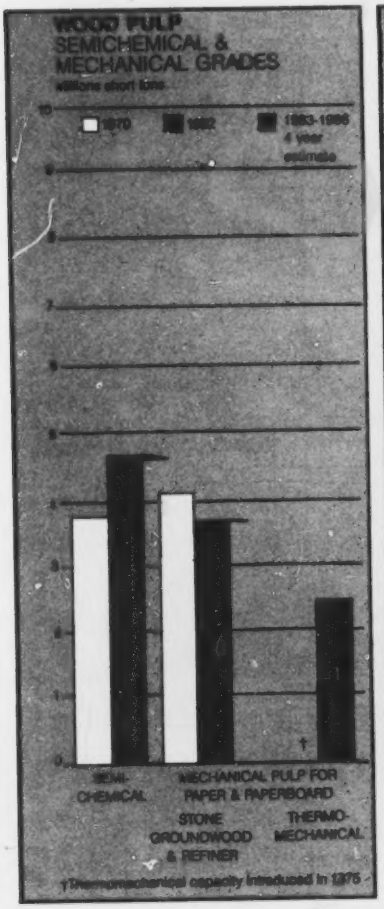
TOTAL MACHINE DRIED WOOD PULP	**9,497**	**9,500**	**9,630**	**10,167**	**10,286**
DISSOLVING	1,606	1,604	1,604	1,604	1,604
CHEMICAL PAPER GRADES	7,787	7,787	7,918	8,455	8,574
SULPHITE	448	416	416	416	416
SULPHATE	7,339	7,371	7,502	8,039	8,158
Bleached & Semibleached	7,188	7,226	7,357	7,893	8,012
Unbleached	151	145	145	145	145
ALL OTHER	104	109	109	109	109

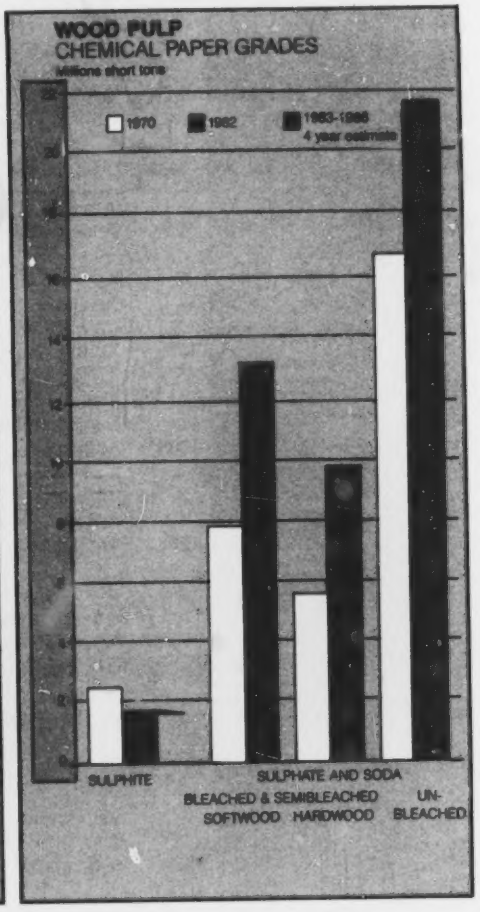
**Capacity additions presented here for 1986 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

†Excludes the defibrated/exploded pulp capacity of mills that produce hard pressed board.

Totals not adjusted for rounding differences.

capacity/annual growth comparison





Practical Maximum Basis
Thousands short tons

GRADES	1982	1983	1984	1985	1986*
TOTAL MARKET WOOD PULP	**7,079**	**7,212**	**7,266**	**7,787**	**7,954**
DISSOLVING	1,598	1,594	1,594	1,594	1,594
CHEMICAL PAPER GRADES	5,469	5,605	5,658	6,179	6,346
SULPHITE	288	277	277	277	277
SULPHATE	5,182	5,327	5,381	5,902	6,069
Bleached & Semibleached	5,040	5,185	5,238	5,760	5,926
Unbleached	142	143	143	143	143
ALL OTHER	12	14	14	14	14

Based on information provided by producers. Reflects diversion of drying capacity to and from own use, installation of new equipment and retirement of existing equipment.

Totals not adjusted for rounding differences

**Capacity additions presented here for 1986 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year*

capacity/annual • year end • daily

	ALL GRADES PAPER & PAPER-BOARD Total	PAPER & PAPER-BOARD Total		Practical Maximum Basis Thousands short tons	PAPER Total	NEWS-PRINT Total	Total	Uncoated Ground-wood	PRINTING, WRITING & RELATED: Coated Ground-wood	Coated Free Sheet	Uncoated Free Sheet	Cotton Fiber	Thin Papers	Solid Bleached Bristols	PACKAGING & INDUSTRIAL CONVERTING: Total	Un-bleached Kraft	Bleached Packaging & Industrial Converting	Specialty Packaging	Special Industrial	TISSUE Total
ANNUAL CAPACITY 1982-1986	73,118	70,098	1982	**Annual Capacity**	**34,665**	**5,654**	**17,809**	**1,655**	**3,242**	**2,274**	**9,039**	**161**	**369**	**1,069**	**6,076**	**4,091**	**553**	**527**	**906**	**5,125**
Annual Capacity includes changes in capacity only for the portion of the year in which they are actually effective	313	811		New Machines	528	35	420	—	254	92	73	1	—	—	—	—	—	—	—	72
	(221)	(84)		Net Improvements	18	59	19	(14)	(44)	36	67	4	(9)	(20)	(44)	(90)	19	14	12	(15)
	73,710	**70,814**	1983	**Annual Capacity**	**35,211**	**5,748**	**18,249**	**1,642**	**3,452**	**2,402**	**9,179**	**166**	**360**	**1,049**	**6,032**	**4,001**	**572**	**540**	**918**	**5,182**
	539	539		New Machines	486	169	310	—	75	42	193	—	—	—	—	—	—	—	—	7
	613	612		Net Improvements	276	9	290	(20)	71	42	182	3	3	9	(71)	(90)	1	8	10	47
	74,862	**71,965**	1984	**Annual Capacity**	**35,973**	**5,927**	**18,849**	**1,622**	**3,598**	**2,487**	**9,554**	**169**	**362**	**1,058**	**5,961**	**3,911**	**573**	**548**	**929**	**5,236**
	553	553		New Machines	502	22	398	—	—	27	371	—	—	—	—	—	—	—	—	82
	538	536		Net Improvements	248	6	234	—	70	37	119	2	1	7	(46)	(46)	(12)	4	7	54
	75,953	**73,054**	1985	**Annual Capacity**	**36,723**	**5,954**	**19,482**	**1,621**	**3,667**	**2,550**	**10,044**	**171**	**363**	**1,065**	**5,915**	**3,865**	**561**	**553**	**936**	**5,371**
	595	595		New Machines	241	—	134	—	—	26	108	—	—	—	—	—	—	—	—	107
	436	435		Net Improvements	267	24	187	—	30	36	117	—	2	1	(10)	(21)	—	6	5	66
	76,984	**74,084**	1986*	**Annual Capacity**	**37,231**	**5,979**	**19,803**	**1,622**	**3,698**	**2,613**	**10,269**	**171**	**365**	**1,066**	**5,905**	**3,844**	**561**	**559**	**941**	**5,545**
YEAR END CAPACITY 1982-1986	73,065	70,182	1982	**Year End Capacity**	**34,923**	**5,700**	**18,016**	**1,644**	**3,422**	**2,294**	**9,051**	**164**	**360**	**1,081**	**6,074**	**4,088**	**558**	**526**	**901**	**5,133**
Year End Capacity is calculated by multiplying Daily Rate by number of Available Days	746	746		New Machines	553	183	370	—	124	126	120	—	—	—	—	—	—	—	—	—
	429	436		Net Improvements	169	25	132	(15)	(21)	36	157	3	2	(29)	(53)	(109)	16	17	23	64
	74,260	**71,364**	1983	**Year End Capacity**	**35,645**	**5,908**	**18,518**	**1,629**	**3,525**	**2,456**	**9,327**	**168**	**362**	**1,052**	**6,021**	**3,978**	**575**	**543**	**924**	**5,198**
	565	565		New Machines	548	37	442	—	—	27	416	—	—	—	—	—	—	—	—	68
	633	631		Net Improvements	278	(5)	315	(7)	115	43	149	3	1	13	(75)	(75)	(14)	7	7	42
	75,458	**72,560**	1984	**Year End Capacity**	**36,470**	**5,940**	**19,276**	**1,621**	**3,640**	**2,526**	**9,891**	**170**	**363**	**1,064**	**5,946**	**3,903**	**561**	**550**	**932**	**5,308**
	384	384		New Machines	153	—	126	—	—	27	100	—	—	—	—	—	—	—	—	27
	579	578		Net Improvements	285	27	215	—	41	41	129	—	2	1	(30)	(42)	—	5	7	73
	76,420	**73,521**	1985	**Year End Capacity**	**36,908**	**5,967**	**19,617**	**1,622**	**3,681**	**2,593**	**10,120**	**171**	**365**	**1,066**	**5,916**	**3,861**	**561**	**555**	**939**	**5,408**
	744	744		New Machines	407	—	317	—	—	25	292	—	—	—	—	—	—	—	—	91
	265	264		Net Improvements	172	16	122	—	20	33	67	—	2	—	(11)	(22)	—	6	5	45
	77,429	**74,529**	1986*	**Year End Capacity**	**37,487**	**5,983**	**20,055**	**1,622**	**3,701**	**2,651**	**10,479**	**171**	**366**	**1,066**	**5,905**	**3,839**	**561**	**560**	**944**	**5,544**
DAILY RATE 1982-1986	350	351	1982	Available Days	353	358	354	357	356	355	353	317	340	357	348	352	352	351	325	354
	208.80	**199.81**		**Daily Rate**	**98.81**	**15.93**	**50.89**	**4.61**	**9.60**	**6.46**	**25.61**	**.52**	**1.06**	**3.03**	**17.47**	**11.61**	**1.59**	**1.50**	**2.78**	**14.52**
	351	351	1983	Available Days	354	357	354	358	356	356	353	316	340	357	348	353	352	351	326	354
	211.86	**203.10**		**Daily Rate**	**100.82**	**16.55**	**52.29**	**4.56**	**9.89**	**6.91**	**26.40**	**.53**	**1.07**	**2.94**	**17.30**	**11.28**	**1.63**	**1.55**	**2.84**	**14.68**
	351	351	1984	Available Days	354	357	354	358	357	356	353	317	340	357	348	353	352	351	326	354
	215.25	**206.48**		**Daily Rate**	**103.14**	**16.64**	**54.42**	**4.53**	**10.21**	**7.10**	**27.99**	**.54**	**1.07**	**2.98**	**17.09**	**11.07**	**1.59**	**1.57**	**2.86**	**14.99**
	351	351	1985	Available Days	354	357	354	358	357	356	353	317	340	357	348	353	352	351	326	354
	217.97	**209.29**		**Daily Rate**	**104.37**	**16.71**	**55.38**	**4.54**	**10.33**	**7.29**	**28.63**	**.54**	**1.07**	**2.98**	**17.01**	**10.95**	**1.59**	**1.58**	**2.88**	**15.27**
	351	351	1986*	Available Days	354	357	354	358	357	356	353	317	340	357	348	353	352	351	326	354
	220.82	**212.05**		**Dialy Rate**	**106.00**	**16.76**	**56.62**	**4.54**	**10.38**	**7.46**	**29.65**	**.54**	**1.08**	**2.98**	**16.97**	**10.89**	**1.59**	**1.60**	**2.90**	**15.65**

*Capacity additions presented here for 1986 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.

Totals not adjusted for rounding differences.

capacity/annual • year end • daily

Practical Maximum Basis

Thousands short tons

			PAPER BOARD	UNBLEACHED KRAFT PAPERBOARD				SOLID BLEACHED PACKAGING PAPERBOARD					SEMI-CHEMICAL PAPER-BOARD	RECYCLED PAPERBOARD							
			Total	Total	Liner-board	Folding	Other	Total	Liner-board	Folding	Milk Carton & Food Service	Other	Total	Total	Liner-board	Corru-gating Medium	Container Chip & Filler Board	Folding	Set-up	Gypsum Wall Board Facing	Other
ANNUAL CAPACITY 1982-1986	**1982**	**Annual Capacity**	**35,421**	**17,402**	**16,032**	**860**	**509**	**4,123**	**104**	**1,988**	**1,812**	**219**	**5,207**	**8,690**	**379**	**1,478**	**273**	**2,676**	**331**	**1,255**	**2,298**
		New Machines	284	131	131	—	—	—	—	—	—	—	153	—	—	—	—	—	—	—	—
		Net Improvements	(103)	(32)	102	(66)	(68)	(23)	—	32	(54)	(1)	(203)	155	79	77	(13)	5	2	(36)	41
	1983	**Annual Capacity**	**35,603**	**17,501**	**16,266**	**794**	**441**	**4,100**	**104**	**2,020**	**1,758**	**217**	**5,156**	**8,845**	**459**	**1,555**	**260**	**2,681**	**333**	**1,220**	**2,339**
		New Machines	53	—	—	—	—	—	—	—	—	—	53	—	—	—	—	—	—	—	—
		Net Improvements	337	170	165	—	5	67	7	16	41	4	9	91	—	27	—	39	1	9	15
	1984	**Annual Capacity**	**35,992**	**17,671**	**16,430**	**794**	**446**	**4,166**	**111**	**2,036**	**1,799**	**221**	**5,218**	**8,937**	**459**	**1,582**	**260**	**2,720**	**335**	**1,228**	**2,353**
		New Machines	51	46	46	—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—
		Net Improvements	289	195	193	—	2	44	(1)	16	28	1	17	32	—	1	1	20	1	—	9
	1985	**Annual Capacity**	**36,332**	**17,913**	**16,670**	**794**	**449**	**4,211**	**109**	**2,052**	**1,827**	**222**	**5,240**	**8,969**	**459**	**1,583**	**261**	**2,740**	**336**	**1,228**	**2,364**
		New Machines	354	213	213	—	—	36	—	29	7	—	—	105	105	—	—	—	—	—	—
		Net Improvements	167	121	121	—	—	8	—	6	2	—	13	25	—	2	1	14	1	—	8
	1986*	**Annual Capacity**	**36,853**	**18,246**	**17,003**	**794**	**449**	**4,255**	**109**	**2,087**	**1,837**	**222**	**5,253**	**9,099**	**564**	**1,585**	**261**	**2,754**	**336**	**1,228**	**2,371**
YEAR END CAPACITY 1982-1986	**1982**	**Year End Capacity**	**35,259**	**17,359**	**16,115**	**793**	**451**	**4,091**	**105**	**1,990**	**1,780**	**217**	**5,001**	**8,808**	**459**	**1,547**	**257**	**2,674**	**332**	**1,211**	**2,329**
		New Machines	193	—	—	—	—	—	—	—	—	—	193	—	—	—	—	—	—	—	—
		Net Improvements	268	187	192	1	(6)	5	—	34	(30)	2	(11)	86	—	28	3	21	2	17	15
	1983	**Year End Capacity**	**35,720**	**17,546**	**16,307**	**794**	**444**	**4,096**	**104**	**2,204**	**1,750**	**218**	**5,183**	**8,895**	**459**	**1,575**	**260**	**2,695**	**334**	**1,228**	**2,344**
		New Machines	18	—	—	—	—	—	—	—	—	—	18	—	—	—	—	—	—	—	—
		Net Improvements	353	181	177	—	4	80	7	16	53	4	36	55	—	8	—	35	1	—	11
	1984	**Year End Capacity**	**36,090**	**17,727**	**16,484**	**794**	**449**	**4,176**	**111**	**2,039**	**1,803**	**222**	**5,236**	**8,950**	**459**	**1,582**	**260**	**2,731**	**335**	**1,228**	**2,355**
		New Machines	231	231	231	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Net Improvements	292	219	219	—	—	39	(2)	15	26	—	6	28	—	1	1	16	1	—	10
	1985	**Year End Capacity**	**36,613**	**18,177**	**16,934**	**794**	**449**	**4,216**	**109**	**2,055**	**1,829**	**222**	**5,242**	**8,978**	**459**	**1,583**	**261**	**2,746**	**336**	**1,228**	**2,365**
		New Machines	337	71	71	—	—	91	—	72	18	—	—	175	175	—	—	—	—	—	—
		Net Improvements	92	46	46	—	—	8	—	8	—	—	15	23	—	2	—	12	1	—	8
	1986*	**Year Capacity**	**37,041**	**18,294**	**17,051**	**794**	**449**	**4,314**	**109**	**2,135**	**1,848**	**222**	**5,257**	**9,177**	**634**	**1,585**	**261**	**2,758**	**337**	**1,228**	**2,373**
DAILY RATE 1982-1986	**1982**	Available Days	349	353	353	350	355	356	341	356	358	354	353	336	339	339	336	337	329	338	334
		Daily Rate	**101.00**	**49.14**	**45.60**	**2.27**	**1.27**	**11.48**	**.31**	**5.59**	**4.98**	**.61**	**14.19**	**26.19**	**1.35**	**4.57**	**.76**	**7.94**	**1.01**	**3.59**	**6.98**
	1983	Available Days	349	353	353	351	356	356	341	357	357	353	353	336	339	340	337	336	329	338	334
		Daily Rate	**102.29**	**49.66**	**46.14**	**2.27**	**1.25**	**11.49**	**.31**	**5.67**	**4.90**	**.62**	**14.69**	**26.45**	**1.35**	**4.64**	**.77**	**8.01**	**1.02**	**3.64**	**7.03**
	1984	Available Days	349	353	353	351	356	356	341	357	357	353	353	336	339	340	337	336	329	338	334
		Daily Rate	**103.36**	**50.17**	**46.64**	**2.27**	**1.26**	**11.72**	**.33**	**5.72**	**5.05**	**.63**	**14.84**	**26.62**	**1.35**	**4.66**	**.77**	**8.12**	**1.02**	**3.64**	**7.06**
	1985	Available Days	349	353	353	351	356	356	341	357	357	353	353	336	339	340	337	336	329	338	334
		Daily Rate	**104.83**	**51.44**	**47.91**	**2.27**	**1.26**	**11.83**	**.32**	**5.76**	**5.12**	**.63**	**14.86**	**26.71**	**1.35**	**4.66**	**.78**	**8.17**	**1.02**	**3.64**	**7.09**
	1986*	Available Days	349	353	353	351	356	357	341	357	357	353	353	336	342	340	337	336	329	338	334
		Daily Rate	**106.05**	**51.77**	**48.25**	**2.27**	**1.26**	**12.10**	**.32**	**5.98**	**5.17**	**.63**	**14.90**	**27.28**	**1.85**	**4.67**	**.78**	**8.21**	**1.02**	**3.64**	**7.11**

capacity/annual year end • daily

			CONSTRUCTION PAPER & BOARD & WET MACHINE BOARD			
			Total	Construc-tion Paper	Wet Machine Board	Insu-lating Board
ANNUAL CAPACITY 1982-1986	**1982**	**Annual Capacity**	**3,032**	**1,306**	**160**	**1,566**
		New Machines	2	—	2	—
		Net Improvements	(137)	(48)	(10)	(80)
	1983	**Annual Capacity**	**2,896**	**1,258**	**152**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	1	1	(1)	—
	1984	**Annual Capacity**	**2,897**	**1,259**	**151**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	2	2	—	—
	1985	**Annual Capacity**	**2,899**	**1,261**	**151**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	1	1	—	—
	1986*	**Annual Capacity**	**2,900**	**1,262**	**151**	**1,487**
YEAR END CAPACITY 1982-1986	**1982**	**Year End Capacity**	**2,903**	**1,254**	**162**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	(7)	4	(11)	—
	1983	**Year End Capacity**	**2,896**	**1,258**	**151**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	2	2	—	—
	1984	**Year End Capacity**	**2,898**	**1,260**	**151**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	1	1	—	—
	1985	**Year End Capacity**	**2,899**	**1,262**	**151**	**1,487**
		New Machines	—	—	—	—
		Net Improvements	1	1	—	—
	1986*	**Year Capacity**	**2,900**	**1,263**	**151**	**1,487**
DAILY RATE 1982-1986	**1982**	Available Days	330	342	317	322
		Daily Rate	**8.79**	**3.67**	**.51**	**4.61**
	1983	Available Days	331	343	319	322
		Daily Rate	**8.76**	**3.67**	**.47**	**4.61**
	1984	Available Days	331	342	319	322
		Daily Rate	**8.77**	**3.68**	**.47**	**4.61**
	1985	Available Days	331	342	319	322
		Daily Rate	**8.77**	**3.68**	**.47**	**4.61**
	1986*	Available Days	331	342	319	322
		Daily Rate	**8.77**	**3.69**	**.47**	**4.61**

Annual Capacity includes changes in capacity only for the portion of the year in which they are actually effective

Year End Capacity is calculated by multipying Daily Rate by number of Available Days

*Capacity additions presented here for 1986 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.

Totals not adjusted for rounding differences.

wood pulp by grade

capacity/annual • year end • daily
for paper & paperboard

for construction paper & board

		Practical Maximum Basis	ALL GRADES WOOD PULP	WOOD PULP (exc. pulp for Construction Paper & Board)	DISSOLVING	CHEMICAL PAPER GRADES							SEMICHEMICAL			MECHANICAL				SCREENINGS	WOOD PULP FOR CONSTRUCTION PAPER & BOARD		
							SULPHITE			SULPHATE AND SODA													
											Bleached &	Semi-Bleached	Unbleached					Stone Groundwood	Refiner	Thermo-mechanical				
		Thousands short tons	Total	Total	Total	Total	Total	Bleached	Unbleached	Total	Hardwood	Softwood		Total	Bleached	Unbleached	Total				Total	Total	Stone Groundwood & Refiner	Defibrated/ Exploded†
ANNUAL CAPACITY 1982-1986 *Annual Capacity includes changes in capacity only for the portion of the year in which they are actually effective*	1982	**Annual Capacity**	**57,638**	**58,125**	1,606	43,971	1,780	1,383	397	42,191	8,705	12,052	21,435	4,734	356	4,378	5,780	3,260	472	2,048	34	1,513	628	885
		New Machines	258	258	—	22	—	—	—	22	—	22	—	106	—	106	129	—	—	129	—	—	—	—
		Net Improvements	(205)	(180)	(2)	89	(36)	(40)	3	125	173	155	(203)	(253)	5	(259)	(10)	(30)	7	13	(4)	(25)	—	(25)
	1983	**Annual Capacity**	**57,690**	**58,202**	1,604	44,082	1,743	1,343	400	42,338	8,877	12,229	21,232	4,587	361	4,226	5,900	3,230	479	2,190	30	1,488	628	860
		New Machines	466	466	—	232	—	—	—	232	173	59	—	48	—	48	186	—	—	186	—	—	—	—
		Net Improvements	341	341	—	316	(27)	25	(52)	343	100	253	(10)	(4)	10	(13)	28	—	15	13	—	—	—	—
	1984	**Annual Capacity**	**58,497**	**57,009**	1,604	44,630	1,717	1,369	348	42,913	9,151	12,540	21,222	4,632	371	4,261	6,114	3,231	494	2,389	30	1,488	628	860
		New Machines	701	701	—	698	—	—	—	698	189	265	244	4	—	4	—	—	—	—	—	—	—	—
		Net Improvements	441	441	—	418	10	15	(5)	408	252	205	(49)	9	1	8	15	—	9	6	—	—	—	—
	1985	**Annual Capacity**	**59,640**	**58,152**	1,604	45,746	1,727	1,384	343	44,019	9,592	13,011	21,416	4,644	372	4,272	6,128	3,231	503	2,395	30	1,488	628	860
		New Machines	220	220	—	220	—	—	—	220	158	47	15	—	—	—	—	—	—	—	—	—	—	—
		Net Improvements	325	325	—	239	1	1	—	238	97	101	40	15	—	15	70	—	4	66	—	—	—	—
	1986*	**Annual Capacity**	**60,184**	**58,696**	1,604	46,205	1,728	1,385	343	44,477	9,847	13,159	21,472	4,659	372	4,287	6,199	3,231	507	2,461	30	1,488	628	860
YEAR END CAPACITY 1982-1986 *Year End Capacity is calculated by multiplying Daily Rate by number of Available Days*	1982	**Year End Capacity**	**57,463**	**55,975**	1,604	44,038	1,735	1,335	400	42,303	8,819	12,173	21,311	4,477	361	4,115	5,827	3,229	469	2,129	30	1,488	628	860
		New Machines	390	390	—	—	—	—	—	—	—	—	—	145	—	145	245	—	—	245	—	—	—	—
		Net Improvements	196	196	—	195	9	9	—	186	91	107	(12)	(24)	—	(24)	24	2	20	2	—	—	—	—
	1983	**Year End Capacity**	**58,048**	**56,560**	1,604	44,233	1,744	1,344	400	42,489	8,910	12,281	21,298	4,597	361	4,236	6,096	3,231	489	2,376	30	1,488	628	860
		New Machines	611	611	—	598	—	—	—	598	308	291	—	13	—	13	—	—	—	—	—	—	—	—
		Net Improvements	334	334	—	280	(21)	36	(57)	301	146	315	(160)	31	11	20	23	—	9	14	—	—	—	—
	1984	**Year End Capacity**	**58,994**	**57,506**	1,604	45,112	1,723	1,380	343	43,388	9,364	12,886	21,139	4,641	372	4,270	6,120	3,231	499	2,390	30	1,488	628	860
		New Machines	357	357	—	357	—	—	—	357	77	49	231	—	—	—	—	—	—	—	—	—	—	—
		Net Improvements	477	477	—	460	5	5	—	455	214	170	70	4	—	4	13	—	8	5	—	—	—	—
	1985	**Year End Capacity**	**59,828**	**58,340**	1,604	45,929	1,728	1,385	343	44,200	9,656	13,105	21,439	4,645	372	4,273	6,133	3,231	507	2,395	30	1,488	628	860
		New Machines	601	601	—	601	—	—	—	601	401	130	71	—	—	—	—	—	—	—	—	—	—	—
		Net Improvements	282	282	—	148	—	—	—	148	104	39	6	23	—	23	110	—	—	110	1	—	—	—
	1986*	**Year End Capacity**	**60,711**	**59,223**	1,604	46,678	1,728	1,385	343	44,950	10,160	13,274	21,516	4,668	372	4,296	6,243	3,231	507	2,506	31	1,488	628	860
DAILY RATE 1982-1986	1982	Available Days	355	355	351	355	352	351	359	355	355	354	356	354	356	354	358	357	359	360	359	338	350	330
		Daily Rate	**161.96**	**157.56**	**4.58**	**124.00**	**4.92**	**3.81**	**1.11**	**119.08**	**24.84**	**34.36**	**59.88**	**12.64**	**1.02**	**11.62**	**16.27**	**9.04**	**1.31**	**5.92**	**.08**	**4.40**	**1.79**	**2.61**
	1983	Available Days	355	355	351	355	352	351	359	355	355	354	356	354	356	354	358	357	359	359	359	338	350	330
		Daily Rate	**162.63**	**159.23**	**4.58**	**124.56**	**4.95**	**3.84**	**1.11**	**119.61**	**25.10**	**34.66**	**59.85**	**12.98**	**1.02**	**11.97**	**17.04**	**9.05**	**1.36**	**6.63**	**.08**	**4.40**	**1.79**	**2.61**
	1984	Available Days	355	355	351	355	352	351	359	355	355	354	356	354	356	354	358	357	358	359	359	338	350	330
		Daily Rate	**166.32**	**161.92**	**4.58**	**127.06**	**4.89**	**3.93**	**.96**	**122.17**	**26.38**	**36.38**	**59.41**	**13.11**	**1.05**	**12.06**	**17.10**	**9.05**	**1.39**	**6.68**	**.08**	**4.40**	**1.79**	**2.61**
	1985	Available Days	355	355	351	355	352	351	359	355	355	354	356	354	356	354	358	357	358	359	359	338	350	330
		Daily Rate	**168.67**	**164.27**	**4.58**	**129.36**	**4.91**	**3.95**	**.96**	**124.45**	**27.20**	**37.00**	**60.25**	**13.12**	**1.05**	**12.07**	**17.14**	**9.05**	**1.42**	**6.68**	**.08**	**4.40**	**1.79**	**2.61**
	1986*	Available Days	355	355	351	355	352	351	359	355	355	354	356	354	356	354	358	357	358	358	359	338	350	330
		Daily Rate	**171.18**	**166.78**	**4.58**	**131.49**	**4.91**	**3.95**	**.96**	**126.58**	**28.64**	**37.48**	**60.47**	**13.18**	**1.05**	**12.14**	**17.45**	**9.05**	**1.42**	**6.99**	**.08**	**4.40**	**1.79**	**2.61**

*Capacity additions presented here for 1986 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.

†Excludes the defibrated/exploded pulp capacity of mills that produce hard pressed board. Totals not adjusted for rounding differences.

annual capacity/regional distribution 1932 & 1986

paper & paperboard

TOTAL U.S. CAPACITY		GRADES	NEW ENGLAND		MID-ATLANTIC		E. NO. CENTRAL		W. NO. CENTRAL		SO. ATLANTIC		E. SO. CENTRAL		W. SO. CENTRAL		MOUNTAIN & PACIFIC*	
1982	1986	*Practical Maximum Basis/Thousands short tons*	1982	1986	1982	1986	1982	1986	1982	1986	1982	1986	1982	1986	1982	1986	1982	1986
73,119	75,281	**TOTAL ALL GRADES PAPER & PAPERBOARD**	5,787	6,104	6,037	6,242	11,330	11,869	1,810	1,886	17,576	18,299	9,183	10,395	10,946	11,318	10,449	10,870
70,698	74,084	**TOTAL PAPER & PAPERBOARD**	5,714	6,038	5,505	5,710	11,007	11,559	1,334	1,461	16,931	17,697	8,836	10,055	10,550	10,921	10,210	10,643
34,685	37,231	**TOTAL PAPER**	4,901	5,208	3,803	3,941	6,597	7,057	875	988	5,245	5,773	3,731	4,334	4,525	4,773	4,988	5,157
5,654	5,979	NEWSPRINT	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	—	—	780	1,011	1,118	1,153	1,343	1,335	1,770	1,836
17,809	19,803	PRINTING, WRITING & RELATED	3,600	3,874	2,313	2,384	4,417	4,639	860	977	2,083	2,509	1,567	2,125	1,540	1,726	1,429	1,569
1,665	1,622	Uncoated Groundwood	745	746	233	232	245	239	N.A.	N.A.	N.A.	N.A.	151	147	N.A.	N.A.	123	97
3,242	3,698	Coated Groundwood	1,212	1,272	270	264	1,003	1,138	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	93	89
2,274	2,613	Coated Free Sheet	199	384	133	141	821	853	N.A.	N.A.	N.A.	N.A.	330	342	N.A.	N.A.	106	111
9,589	10,805	Uncoated Free Sheet[1]	1,376	1,447	1,660	1,732	2,256	2,316	253	253	1,205	1,526	983	1,385	791	980	1,045	1,210
1,069	1,066	Solid Bleached Bristols	68	25	16	15	92	93	—	—	341	368	N.A.	N.A.	407	417	61	62
6,076	5,905	PACKAGING & INDUSTRIAL CONVERTING	457	461	222	234	773	810	N.A.	N.A.	1,964	1,845	508	512	1,213	1,175	924	857
5,125	5,545	TISSUE	547	576	1,060	1,116	1,268	1,469	—	—	419	408	538	543	429	538	865	895
35,421	36,851	**TOTAL PAPERBOARD**	811	830	1,702	1,768	4,410	4,502	459	473	11,686	11,924	5,105	5,721	6,025	6,148	5,223	5,486
17,402	18,248	UNBLEACHED KRAFT	—	—	—	—	—	—	—	—	7,771	7,939	3,324	3,692	3,521	3,784	2,785	2,831
16,032	17,003	of which Kraft Linerboard	—	—	—	—	—	—	—	—	7,352	7,562	2,934	3,301	3,005	3,352	2,741	2,788
4,128	4,255	SOLID BLEACHED	N.A.	N.A.	—	—	N.A.	N.A.	—	—	1,684	1,724	735	742	1,240	1,333	431	426
5,207	5,253	SEMICHEMICAL	N.A.	N.A.	—	—	1,579	1,672	N.A.	N.A.	1,141	1,084	682	916	909	662	733	755
8,680	9,099	RECYCLED	680	702	1,702	1,768	2,829	2,828	395	409	1,090	1,178	364	371	357	369	1,274	1,473
3,039	3,800	**TOTAL CONSTRUCTION PAPER & BOARD**	73	66	532	532	323	310	476	425	645	602	347	340	396	397	238	227

wood pulp

37,838	39,184	**TOTAL ALL GRADES WOOD PULP**	3,317	3,369	1,474	1,462	3,422	3,611	875	942	18,171	19,080	9,750	11,136	10,907	10,818	9,722	9,768
36,238	38,056	**TOTAL WOOD PULP (exc. pulp for Construction Paper & Board)**	3,238	3,290	1,354	1,342	3,292	3,492	557	633	17,726	18,635	9,560	10,946	10,756	10,672	9,642	9,687
1,606	1,604	DISSOLVING	—	—	—	—	—	—	—	—	641	642	N.A	N.A.	—	—	702	703
1,760	1,728	SULPHITE PAPER GRADES	N.A.	N.A.	N.A.	N.A.	516	494	—	—	—	—	—	—	—	—	761	729
32,226	34,437	SULPHATE AND SODA PAPER GRADES	1,883	1,929	504	486	1,067	1,188	277	281	15,588	16,343	7,833	8,951	8,768	8,931	6,305	6,398
12,082	13,189	Bleached & Semibleached Softwood	751	767	161	160	314	356	N.A.	N.A.	3,610	4,171	2,041	2,371	2,456	2,521	2,645	2,730
6,705	6,947	Bleached & Semibleached Hardwood	1,097	1,127	343	326	528	604	N.A.	N.A.	2,677	3,082	2,147	2,604	1,588	1,767	135	150
21,439	21,501	Unbleached[2]	N.A.	N.A.	—	—	N.A.	N.A.	N.A.	N.A.	9,302	9,089	3,644	3,976	4,724	4,644	3,525	3,518
4,134	4,050	SEMICHEMICAL	N.A.	N.A.	405	420	1,322	1,376	N.A.	N.A.	896	838	575	749	823	570	586	582
5,790	5,186	MECHANICAL	1,023	1,029	190	183	387	434	236	308	601	812	889	987	1,165	1,170	1,289	1,275
1,600	1,128	**WOOD PULP FOR CONSTRUCTION PAPER & BOARD[3]**	79	79	120	120	130	119	318	309	445	445	190	190	151	146	80	81

(1) Includes cotton fiber and thin papers.
(2) Includes screenings.
(3) Excludes defibrated/exploded pulp capacity of mills that produce hard pressed board.

Totals not adjusted for rounding differences.

**Includes Alaska*

world capacity 1982 & 1986

wood pulp (Except Defibrated/Exploded & Screenings)

Thousands of METHIC tons

	TOTALS			MECHANICAL		SEMICHEMICAL		CHEMICAL PAPER GRADES		
	1982	1986	Percent Increase	1982	1986	1982	1986	1982	1986	of which 1982
WORLD TOTAL	150,381	160,818	6.9	35,111	38,305	10,031	10,462	99,130	105,665	27,009
DEVELOPED MKT. ECONOMIES	121,786	128,436	5.5	29,467	31,922	8,294	8,381	80,268	84,273	21,867
NORTH AMERICA	73,504	76,895	4.6	14,407	15,636	4,740	4,699	52,595	54,853	14,800
of which: U.S.	50,886	53,223	4.6	5,244	5,624	4,295	4,227	39,890	41,917	4,961
Canada	22,618	23,672	4.7	9,163	10,012	445	472	12,705	12,936	6,839
JAPAN	12,740	13,143	3.2	2,546	2,546	1,732	1,759	8,013	8,389	1,033
WESTERN EUROPE	31,931	34,007	6.5	11,129	12,196	1,267	1,360	18,409	19,242	8,663
of which: E.E.C.	8,214	8,819	9.7	3,074	3,301	494	547	2,370	2,688	1,056
Nordic Countries	20,055	21,755	5.3	7,045	7,875	655	695	12,395	12,550	5,900
Rest of W.E.	5,083	5,433	7.3	1,010	1,020	118	118	3,644	4,004	1,707
OCEANIA	2,411	2,670	10.7	1,072	1,189	396	398	943	1,083	331
OTHERS	1,199	1,711	45.0	313	355	159	165	308	706	40
DEVELOPING MKT. ECONOMIES	8,242	10,485	27.2	1,228	1,762	572	756	6,190	7,690	2,690
AFRICA	687	897	30.6	22	44	56	71	609	782	494
LATIN AMERICA	5,653	7,262	28.5	652	992	389	448	4,555	5,765	2,068
of which: Brazil	3,487	4,217	20.6	305	485	150	150	3,000	3,540	1,547
Mexico	635	755	18.9	79	199	—	--	556	556	—
ASIA	1,902	2,326	22.3	554	726	127	237	1,026	1,143	128
CENT. PLANNED ECONOMIES	20,373	21,907	7.5	4,416	4,621	1,165	1,325	12,672	13,702	2,452
of which: USSR	12,500	13,750	7.4	2,400	2,500	750	850	8,100	8,700	2,000

Totals not adjusted for rounding differences.

**No data available for 1986.*

paper & paperboard (Except Insulating & Hard Pressed Board)

Thousands of METRIC tons

	DISSOLVING		TOTALS			NEWSPRINT		PRINTING & WRITING		WRAPPING		ALL OTHER	
market 1985*	1982	1986	1982	1986	Percent Increase	1982	1986	1982	1986	1982	1986	1982	1986
28,376	6,109	6,386	206,123	225,916	8.5	31,187	34,814	51,565	57,360	102,900	109,956	22,471	23,787
22,753	3,737	3,850	160,707	173,073	7.7	26,178	28,802	41,471	46,103	74,089	78,252	18,969	19,917
12,727	1,762	1,707	80,480	85,451	6.2	15,064	15,924	17,580	19,947	38,789	40,132	9,047	9,448
5,606	1,457	1,455	64,812	68,491	5.5	5,129	5,424	15,822	17,634	35,686	36,822	8,275	8,611
7,121	305	252	15,668	16,960	8.9	9,935	10,500	1,758	2,313	3,103	3,310	772	837
1,033	449	449	22,430	25,316	10.8	2,971	3,353	5,929	6,401	10,515	11,937	3,434	3,624
8,566	1,126	1,209	53,280	57,180	7.3	7,080	7,857	17,343	19,110	22,827	23,851	6,010	6,351
1,236	276	283	26,814	30,626	6.3	1,871	2,200	10,337	11,130	12,780	13,226	3,826	4,070
5,725	560	635	15,740	17,635	12.0	4,425	4,485	4,350	5,235	5,730	6,220	1,235	1,325
1,605	291	291	5,706	6,519	2.4	784	812	2,656	2,745	4,317	4,405	949	956
327	—	—	2,526	3,142	24.4	695	1,255	298	275	1,191	1,266	341	346
100	400	485	1,593	1,994	25.3	368	413	321	370	767	1,066	137	148
3,025	252	277	18,278	21,729	18.9	1,641	2,457	4,618	5,336	10,042	11,656	1,977	2,277
493	—	—	696	1,231	38.9	64	95	285	371	483	705	54	60
2,361	57	57	10,257	12,322	20.1	761	1,228	2,156	2,556	5,827	6,749	1,513	1,789
1,609	42	42	3,941	4,830	22.8	127	297	901	1,142	2,340	2,763	573	637
—	—	—	2,804	3,397	21.1	241	391	616	681	1,548	1,803	399	522
171	195	220	7,136	8,173	14.5	816	1,134	2,177	2,409	3,732	4,202	410	428
2,598	2,120	2,259	29,136	31,117	6.8	3,368	3,555	5,476	5,921	18,769	20,048	1,525	1,593
2,000	1,550	1,700	13,000	14,000	7.7	1,850	1,950	1,600	1,700	8,695	9,465	855	885

Source: Food and Agriculture Organization of the United Nations, U.S. capacity-American Paper Institute.

structure of U.S. paper, paperboard, wood pulp industry

mill size Paper & Paperboard, Wood Pulp

Thousands short tons

MILL CAPACITY RANGE	PAPER & PAPERBOARD				WOOD PULP			
	NUMBER OF MILLS		ANNUAL CAPACITY		NUMBER OF MILLS		ANNUAL CAPACITY	
	1976	1982	1976	1982	1976	1982	1976	1982
TOTAL	687	581	68,184	73,118	271	228	53,047	57,638
0 - 25	238	169	3,043	2,096	32	21	487	309
26 - 50	133	99	4,891	3,656	40	20	1,491	778
51 - 75	72	69	4,500	4,211	26	15	1,620	983
76 - 100	52	41	4,606	3,716	20	15	1,779	1,220
101 - 125	32	31	3,565	3,582	15	14	1,658	1,605
126 - 150	18	22	2,506	3,003	13	8	1,724	1,222
151 - 175	23	14	3,714	2,301	13	10	2,084	1,612
176 - 200	17	24	3,194	4,531	9	15	1,882	2,843
201 - 250	20	17	4,440	3,775	20	13	4,330	2,799
251 - 300	17	16	4,608	4,325	12	20	3,270	5,414
301 - 350	19	15	6,081	4,890	13	8	4,212	2,563
351 - 400	11	17	4,171	6,469	13	15	4,971	5,638
401 - 450	11	5	4,617	3,571	13	10	4,997	4,200
451 - 500	8	14	2,868	6,609	8	12	3,852	5,681
Over 500	18	25	11,360	16,592	22	31	13,441	20,671

Mill sizes reflect annual capacities measured on a practical maximum basis

Note: 1976 includes mills and capacity for hard pressed board and supporting pulp facilities.

capacity in integrated and nonintegrated mills

Thousands short tons

GRADES	ANNUAL PAPER & PAPERBOARD CAPACITY					
	INTEGRATED TO WOOD PULP		NONINTEGRATED		TOTAL	
	1976	1982	1976	1982	1976	1982
TOTAL ALL GRADES	50,482	56,671	17,702	16,447	68,184	73,118
PAPER	21,360	27,526	7,851	7,139	29,210	34,665
Newsprint	3,589	5,212	425	442	4,014	5,654
Uncoated Groundwood	1,093	1,515	216	140	1,309	1,655
Coated Groundwood	2,218	3,093	81	149	2,299	3,242
Coated Free Sheet	1,359	1,776	544	498	1,903	2,274
Uncoated Free Sheet*	4,837	7,384	2,624	1,816	7,461	9,200
Thin Papers	57	106	301	263	358	369
Solid Bleached Bristols	1,092	946	73	123	1,165	1,069
Pkg. & Ind. Conv.	5,071	4,887	1,131	1,189	6,202	6,076
Tissue	2,043	2,606	2,457	2,519	4,500	5,125
PAPERBOARD	23,836	27,075	8,261	8,346	32,097	35,421
Unbleached Kraft	14,568	17,402	—	—	14,568	17,402
Solid Bleached	3,998	4,121	—	2	3,998	4,123
Semichemical	4,758	5,207	—	—	4,758	5,207
Recycled	513	346	8,261	8,344	8,774	8,690
CONSTRUCTION PAPER & BOARD †	5,286	2,070	1,590	962	6,876	3,032

Integrated mills include all mills with active on-site wood pulp capacity, whether or not this capacity provides a significant portion of total furnish.

**Includes cotton fiber*
†Includes hard pressed board in 1976 only

structure of U.S. paper & paperboard industry

In the following tables, the total capacity of machines which produce more than one grade of paper or paperboard is included under the grade representing the major portion of their production.

machines operating in 1982 year of installation or last major rebuild

Major rebuilds include only modifications which significantly extended the useful life or increased the capacity of a machine.

YEAR INSTALLED OR REBUILT	NUMBER OF MACHINES	PERCENT OF U.S. CAPACITY	
		GROUP	CUMULATIVE
TOTAL INDUSTRY	**1,352**		
NO DATA AVAILABLE	**294**		
TOTAL SAMPLE*	**1,058**		
1982	52	5.7	5.7
1981	52	7.3	13.0
1980	40	4.5	17.5
1979	31	4.6	22.1
1978	28	3.9	26.0
1977	35	4.1	30.1
1976	42	3.1	33.2
1971-1975	170	18.6	51.8
1966-1970	202	19.3	71.1
1961-1965	142	11.0	82.1
1956-1960	69	6.0	88.1
1951-1955	49	4.4	92.5
Prior to 1950	146	7.5	100.0

*Machines in sample represent 91% of annual capacity in 1982.

summary— paper & paperboard machines

	NUMBER OF MACHINES	
	1975	1982
ALL GRADES	**1,578**	**1,352**
TOTAL PAPER	**981**	**910**
NEWSPRINT	38	44
UNCOATED GROUNDWOOD	38	34
COATED PAPERS	81	84
UNCOATED FREE SHEET*	278	264
THIN PAPERS	62	44
SOLID BLEACHED BRISTOLS	16	15
PKG. & IND. CONV	228	194
TISSUE	240	231
TOTAL PAPERBOARD	**395**	**340**
UNBLEACHED KRAFT	69	72
SOLID BLEACHED	31	30
SEMICHEMICAL	51	44
RECYCLED	244	194
TOTAL OTHER PAPER & BOARD†	**202**	**102**

*Includes cotton fiber.
†Includes hard pressed board in 1975 only.

machines in operation 1975 & 1982

breakdown by principal grade produced—paper

Thousands short tons

MACHINE CAPACITY RANGE	NEWSPRINT				UNCOATED GROUNDWOOD				COATED PAPERS				UNCOATED FREE SHEET*			
	Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity	
	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982
Total	**38**	**44**	**100.0**	**100.0**	**38**	**34**	**100.0**	**100.0**	**81**	**84**	**100.0**	**100.0**	**278**	**264**	**100.0**	**100.0**
0 - 5	—	—	—	—	—	—	—	—	1	—	—	—	41	39	1.7	1.6
6 - 10	—	—	—	—	1	1	0.6	0.5	2	—	0.4	—	43	22	4.3	2.0
11 - 15	—	—	—	—	5	3	5.1	2.5	2	1	0.7	0.3	28	25	4.8	3.5
16 - 20	1	—	0.4	—	6	2	7.7	2.2	5	2	2.3	0.7	36	27	8.3	5.3
21 - 30	2	1	1.2	0.4	4	5	7.6	7.4	13	10	8.4	5.1	53	51	17.5	13.8
31 - 40	2	4	1.7	2.5	11	5	28.3	10.2	16	14	14.1	9.4	18	23	8.1	8.7
41 - 50	1	3	1.0	2.6	5	8	16.4	21.9	9	14	9.8	11.8	14	22	8.1	10.9
51 - 75	1	3	1.4	3.4	4	4	18.9	15.6	17	18	24.6	21.1	25	25	19.7	16.7
76 - 100	7	2	14.5	3.3	1	4	5.4	22.6	7	9	14.1	14.4	11	14	12.5	13.3
101 - 125	10	9	28.6	19.8	1	1	9.0	7.2	7	9	18.1	18.7	5	4	7.5	4.8
126 - 150	8	7	26.3	17.7	—	—	—	—	—	6	—	15.7	3	7	5.3	10.1
151 - 200	5	12	19.7	37.8	—	1	—	9.9	2	1	7.5	2.8	1	4	2.2	6.9
Over 200	1	3	5.2	12.5	—	—	—	—	—	—	—	—	—	1	—	2.3

*Includes cotton fiber

MACHINE CAPACITY RANGE	THIN PAPERS				BLEACHED BRISTOLS				PACKAGING & INDUSTRIAL CONVERTING				TISSUE			
	Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity	
	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982
Total	**62**	**44**	**100.0**	**100.0**	**16**	**15**	**100.0**	**100.0**	**228**	**194**	**100.0**	**100.0**	**240**	**231**	**100.0**	**100.0**
0 - 5	46	21	38.7	15.2	—	—	—	—	49	49	2.3	2.9	39	34	2.4	2.1
6 - 10	7	13	13.3	24.2	2	2	1.4	1.8	53	40	6.2	5.5	40	29	6.8	4.1
11 - 15	2	3	6.3	11.6	—	1	—	1.2	22	25	4.4	5.8	40	33	11.7	8.2
16 - 20	3	1	13.7	4.5	1	—	1.4	—	29	21	8.1	6.3	32	28	12.5	9.6
21 - 30	4	4	28.0	27.7	1	1	1.8	2.7	20	16	7.7	6.7	38	44	21.3	21.1
31 - 40	—	2	—	16.8	1	2	2.9	7.1	9	7	5.1	4.3	33	31	25.2	20.9
41 - 50	—	—	—	—	2	2	8.5	9.7	7	3	5.0	2.3	9	14	8.7	11.9
51 - 75	—	—	—	—	1	—	4.6	—	11	4	11.3	4.7	8	14	9.6	14.9
76 - 100	—	—	—	—	4	4	30.9	34.4	11	7	15.9	10.7	1	3	1.8	5.2
101 - 125	—	—	—	—	1	—	10.8	—	11	9	19.8	16.9	—	1	—	2.0
126 - 150	—	—	—	—	2	2	23.5	27.8	4	9	8.9	21.1	—	—	—	—
151 - 200	—	—	—	—	1	1	14.2	15.3	2	2	5.3	5.5	—	—	—	—
Over 200	—	—	—	—	—	—	—	—	—	2	—	7.3	—	—	—	—

breakdown by principal grade produced—paperboard and other

Thousands short tons

MACHINE CAPACITY RANGE	UNBLEACHED KRAFT				SOLID BLEACHED				MACHINE CAPACITY RANGE	SEMICHEMICAL				RECYCLED				OTHER PAPER & BOARD			
	Number of Machines		Percent of Total Capacity		Number of Machines		Percent	of Total acity		Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity		Number of Machines		Percent of Total Capacity	
	1975	1982	1975	1982	1975	1982	1975	1982		1975	1982	1975	1982	1975	1982	1975	1982	1975	1982	1975	1982
Total	**69**	**72**	**100.0**	**100.0**	**31**	**30**	**100.0**	**100.0**	**Total**	**51**	**44**	**100.0**	**100.0**	**244**	**194**	**100.0**	**100.0**	**202**	**102**	**100.0**	**100.0**
0 - 5	—	—	—	—	—	—	—	—	0 - 5	—	—	—	—	9	1	0.2	0.1	22	17	0.7	0.8
6 - 10	—	—	—	—	—	—	—	—	6 - 10	—	—	—	—	7	3	0.6	0.3	24	18	2.8	4.6
11 - 15	—	—	—	—	—	—	—	—	11 - 15	—	—	—	—	19	19	2.8	3.3	24	11	4.4	4.7
16 - 20	—	—	—	—	—	1	—	0.4	16 - 20	—	—	—	—	24	17	4.8	3.8	23	6	6.1	3.4
21 - 30	—	—	—	—	1	—	0.6	—	21 - 30	2	2	1.2	1.2	52	42	14.3	13.1	22	17	6.1	10.1
31 - 40	3	1	0.7	0.2	2	1	1.6	0.6	31 - 40	1	—	0.6	—	39	30	15.3	13.3	30	11	15.5	12.7
41 - 50	1	2	0.4	0.5	1	1	1.1	1.0	41 - 50	1	1	1.0	1.0	48	32	24.4	16.5	16	8	10.9	8.2
51 - 75	2	1	0.9	0.4	3	2	4.7	3.1	51 - 75	12	9	15.2	11.4	34	32	24.0	23.8	17	8	16.2	15.8
76 - 100	1	4	0.6	2.0	3	2	6.4	4.0	76 - 100	16	11	28.9	21.3	6	10	5.6	10.6	18	11	23.4	30.6
101 - 125	3	4	2.4	2.7	3	3	8.1	7.7	101 - 125	10	10	23.0	23.9	5	5	6.3	6.8	4	1	6.9	4.0
126 - 150	5	2	4.8	1.6	9	5	31.1	16.2	126 - 150	4	5	11.0	14.7	1	1	1.7	1.9	1	—	2.2	—
151 - 200	21	13	24.5	13.8	6	11	24.8	42.6	151 - 200	4	3	14.4	11.5	—	2	—	4.5	1	1	2.8	5.1
201 - 250	10	13	15.6	17.3	2	3	11.2	15.2	201 - 250	1	2	4.7	9.3	—	—	—	—	—	—	—	—
251 - 300	11	12	20.6	19.2	—	—	—	—	251 - 300	—	1	—	5.7	—	—	—	—	—	—	—	—
301 - 400	10	16	23.5	31.6	—	1	—	8.0	301 - 400	—	—	—	—	—	—	—	—	—	—	—	—
Over 400	2	4	6.0	10.7	1	—	10.4	—	Over 400	—	—	—	—	—	—	—	—	—	—	—	—

1982-1986 for paper/paperboard/wood pulp manufacture

fiber consumption in paper & paperboard manufacture

Thousands short tons

	Total U.S.	Percent of Total Fiber	New England	Mid-Atlantic	East-North Central	West-North Central	South Atlantic	East-South Central	West-South Central	Mountain & Pacific
1982										
TOTAL FIBER	**63,060**	**100.0**	**4,759**	**4,855**	**9,554**	**1,375**	**15,437**	**8,319**	**9,488**	**9,272**
TOTAL WOOD PULP	47,991	76.1	3,675	2,654	5,239	853	12,879	7,384	8,396	6,910
Manufactured on-site	40,398	64.1	2,020	1,199	2,542	595	12,434	7,101	8,201	6,307
*Purchased & transferred	7,592	12.0	1,655	1,456	2,697	257	446	283	196	603
†TOTAL RECYCLABLE PAPER	14,620	23.2	971	2,161	4,292	515	2,464	902	1,015	2,301
Mixed Papers	1,707	2.7	115	384	410	102	366	126	71	134
Newspapers	2,673	4.3	99	623	689	48	402	55	128	629
Corrugated	6,770	10.7	229	599	1,998	280	1,372	542	504	1,245
Pulp Substitutes	2,247	3.6	361	366	536	64	324	167	178	250
High Grade Deinking	1,224	1.9	167	189	659	20	—	12	134	42
OTHER FIBERS	449	0.7	113	40	24	8	94	33	76	61
1983										
TOTAL FIBER	**68,403**	**100.0**	**5,170**	**5,048**	**10,304**	**1,520**	**16,813**	**9,107**	**10,258**	**10,185**
TOTAL WOOD PULP	51,806	75.7	3,957	2,692	5,683	970	14,082	8,010	8,935	7,476
Manufactured on-site	43,816	64.0	2,227	1,242	2,820	692	13,574	7,670	8,757	6,833
*Purchased & transferred	7,990	11.7	1,731	1,449	2,863	278	508	340	178	643
†TOTAL RECYCLABLE PAPER	16,100	23.6	1,089	2,314	4,595	540	2,637	1,052	1,234	2,638
Mixed Papers	1,814	2.7	109	438	428	105	379	141	85	127
Newspapers	3,012	4.4	122	667	783	50	411	62	133	784
Corrugated	7,603	11.1	278	627	2,109	310	1,502	643	692	1,441
Pulp Substitutes	2,399	3.5	392	385	592	54	344	189	187	255
High Grade Deinking	1,273	1.9	187	198	682	21	1	17	137	31
OTHER FIBERS	497	0.7	124	41	25	9	94	46	88	70
1984										
TOTAL FIBER	**72,203**	**100.0**	**5,482**	**5,344**	**10,773**	**1,609**	**17,981**	**9,502**	**10,658**	**10,854**
TOTAL WOOD PULP	54,467	75.4	4,149	2,742	5,839	1,047	15,098	8,382	9,292	7,917
Manufactured on-site	46,151	63.9	2,341	1,242	2,892	751	14,542	8,011	9,141	7,230
*Purchased & transferred	8,316	11.5	1,808	1,501	2,947	296	556	371	152	687
†TOTAL RECYCLABLE PAPER	17,236	23.9	1,200	2,559	4,906	552	2,806	1,073	1,278	2,862
Mixed Papers	1,888	2.6	131	474	455	109	331	150	90	149
Newspapers	3,237	4.5	137	707	826	52	431	63	134	886
Corrugated	8,215	11.4	310	766	2,215	314	1,687	650	739	1,532
Pulp Substitutes	2,495	3.5	429	405	621	55	355	188	179	263
High Grade Deinking	1,401	1.9	192	207	789	21	2	22	135	32
OTHER FIBERS	499	0.7	133	43	28	9	77	47	88	76
1985										
TOTAL FIBER	**73,859**	**100.0**	**5,602**	**5,472**	**11,134**	**1,605**	**18,494**	**9,787**	**10,789**	**10,977**
TOTAL WOOD PULP	55,544	75.2	4,245	2,743	5,996	1,042	15,557	8,627	9,371	7,964
Manufactured on-site	47,081	63.7	2,411	1,251	2,997	747	14,987	8,206	9,220	7,263
*Purchased & transferred	8,463	11.5	1,833	1,491	2,999	295	570	421	152	701
†TOTAL RECYCLABLE PAPER	17,799	24.1	1,217	2,685	5,109	554	2,858	1,114	1,327	2,935
Mixed Papers	1,980	2.7	132	521	465	108	352	156	96	151
Newspapers	3,389	4.6	139	727	855	53	444	68	147	956
Corrugated	8,466	11.5	314	820	2,255	316	1,783	659	778	1,539
Pulp Substitutes	2,444	3.3	439	410	627	56	278	208	170	256
High Grade Deinking	1,521	2.0	193	207	908	22	2	22	135	32
OTHER FIBERS	516	0.7	141	44	28	9	79	47	91	78

Comprises all dried, wet lap or slush pulp not produced on-site including transfers from company owned or affiliated mills.

†Includes construction grades and molded pulp products.

FIBER CONSUMPTION IN PAPER AND PAPERBOARD MANUFACTURE (Continued)

Thousands short tons

	Total U.S.	Percent of Total Fiber	New England	Mid-Atlantic	East-North Central	West-North Central	South Atlantic	East-South Central	West-South Central	Mountain & Pacific
1986										
TOTAL FIBER	**74,866**	**100.0**	**5,676**	**5,460**	**11,221**	**1,564**	**18,659**	**10,028**	**11,052**	**11,205**
TOTAL WOOD PULP	56,235	75.1	4,298	2,754	6,043	999	15,686	8,861	9,555	8,038
Manufactured on-site	47,550	63.5	2,437	1,251	3,029	716	15,114	8,263	9,403	7,336
*Purchased & transferred	8,685	11.6	1,861	1,503	3,014	283	572	598	152	702
†TOTAL RECYCLABLE PAPER	18,109	24.2	1,233	2,661	5,150	556	2,893	1,121	1,407	3,088
Mixed Papers	1,991	2.7	133	520	470	108	355	157	96	152
Newspapers	3,388	4.5	142	716	858	54	445	68	148	957
Corrugated	8,680	11.6	319	819	2,273	322	1,813	661	783	1,689
Pulp Substitutes	2,468	3.3	445	399	627	50	279	209	201	257
High Grade Deinking	1,583	2.1	193	207	922	22	2	25	179	33
OTHER FIBERS	523	0.7	146	45	28	9	79	47	91	79

Totals not adjusted for rounding differences.

pulpwood consumption in wood pulp manufacture

Thousands of CORDS

1982										
TOTAL PULPWOOD	**76,255**	**100.0**	**4,774**	**1,921**	**4,409**	**1,010**	**24,054**	**13,090**	**13,582**	**13,417**
Roundwood & Roundwood Chips	45,760	60.0	3,698	1,585	3,410	823	15,950	9,137	8,737	2,420
Forest Residues	3,201	4.2	—	59	349	105	1,242	256	879	311
Manufacturing Residues	27,294	35.8	1,075	277	650	82	6,862	3,697	3,965	10,686
1983										
TOTAL PULPWOOD	**82,893**	**100.0**	**5,103**	**2,035**	**4,768**	**1,125**	**26,211**	**14,110**	**14,541**	**15,000**
Roundwood & Roundwood Chips	49,463	59.7	4,027	1,692	3,672	868	17,590	9,830	9,401	2,385
Forest Residues	3,482	4.2	—	66	388	166	1,264	313	895	390
Manufacturing Residues	29,947	36.1	1,076	277	708	92	7,356	3,967	4,245	12,225
1984										
TOTAL PULPWOOD	**86,421**	**100.0**	**5,250**	**2,052**	**4,925**	**1,174**	**27,608**	**14,649**	**15,161**	**15,602**
Roundwood & Roundwood Chips	51,710	59.8	4,061	1,709	3,765	911	18,799	10,104	9,661	2,699
Forest Residues	3,618	4.2	—	66	458	171	1,286	326	902	409
Manufacturing Residues	31,093	36.0	1,189	277	702	92	7,523	4,218	4,598	12,493
1985										
TOTAL PULPWOOD	**88,098**	**100.0**	**5,379**	**2,048**	**5,045**	**1,174**	**28,268**	**15,590**	**15,285**	**15,311**
Roundwood & Roundwood Chips	53,248	60.4	4,174	1,709	3,849	912	19,284	10,706	9,796	2,817
Forest Residues	3,740	4.3	—	66	468	171	1,391	327	906	412
Manufacturing Residues	31,110	35.3	1,204	273	728	91	7,593	4,557	4,583	12,082
1986										
TOTAL PULPWOOD	**90,097**	**100.0**	**5,381**	**2,048**	**5,230**	**1,151**	**28,535**	**15,999**	**15,599**	**16,154**
Roundwood & Roundwood Chips	54,101	60.0	4,177	1,709	4,036	889	19,418	11,092	9,978	2,802
Forest Residues	3,787	4.2	—	66	470	171	1,434	327	907	412
Manufacturing Residues	32,209	35.8	1,204	273	723	91	7,684	4,580	4,714	12,941

Totals not adjusted for rounding differences.

FIBER CONSUMPTION DEFINITIONS

1982 — Actual consumption
1983 — Best estimate based on year-to-date experience
1984-86 — Consumption at capacity levels of production

recyclable paper in paper & paperboard manufacture

actual consumption

Thousands Short Tons

END PRODUCTS	1982 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**14,620**	**1,707**	**2,673**	**6,770**	**2,247**	**1,224**
TOTAL PAPER	**4,018**	**91**	**1,210**	**217**	**1,421**	**1,081**
NEWSPRINT	1,101	—	1,066	—	35	—
PRINTING, WRITING & RELATED	980	4	—	9	699	269
PACKAGING & IND. CONVERTING	189	10	8	37	130	5
TISSUE	1,748	77	136	171	558	807
TOTAL PAPERBOARD	**9,546**	**1,185**	**1,257**	**6,241**	**743**	**120**
KRAFT, BLEACHED & UNBLEACHED	1,191	—	—	1,136	52	3
SEMICHEMICAL	1,395	63	—	1,318	14	—
RECYCLED	6,960	1,122	1,257	3,787	677	117
CONSTRUCTION PAPER & BOARD	**1,055**	**431**	**206**	**312**	**84**	**23**

Data on recyclable paper are collected in an industry-wide survey of paper and paperboard mills under the following definitions:

1982—Actual consumption
1983—Best estimate based on year-to-date experience
1984-1986—Consumption at capacity levels of production

planned future consumption

Thousands Short Tons

END PRODUCTS	1983 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**16,100**	**1,814**	**3,012**	**7,603**	**2,399**	**1,273**
TOTAL PAPER	**4,379**	**108**	**1,381**	**258**	**1,515**	**1,117**
NEWSPRINT	1,250	—	1,215	—	35	—
PRINTING, WRITING & RELATED	997	4	—	9	701	283
PACKAGING & IND. CONVERTING	238	13	7	65	147	6
TISSUE	1,894	91	159	184	632	828
TOTAL PAPERBOARD	**10,635**	**1,267**	**1,407**	**7,022**	**798**	**142**
KRAFT, BLEACHED & UNBLEACHED	1,440	—	—	1,357	69	14
SEMICHEMICAL	1,577	62	—	1,503	12	—
RECYCLED	7,618	1,205	1,407	4,162	717	128
CONSTRUCTION PAPER & BOARD	**1,088**	**439**	**224**	**324**	**86**	**14**

END PRODUCTS	1984 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**17,236**	**1,888**	**3,237**	**8,215**	**2,495**	**1,401**
TOTAL PAPER	**4,712**	**137**	**1,490**	**276**	**1,573**	**1,237**
NEWSPRINT	1,350	—	1,315	—	35	—
PRINTING, WRITING & RELATED	1,099	4	—	10	715	371
PACKAGING & IND. CONVERTING	250	14	7	74	142	13
TISSUE	2,013	119	168	192	681	853
TOTAL PAPERBOARD	**11,361**	**1,301**	**1,504**	**7,603**	**835**	**150**
KRAFT, BLEACHED & UNBLEACHED	1,535	—	—	1,444	72	19
SEMICHEMICAL	1,597	—	—	1,597	—	—
RECYCLED	8,261	1,301	1,504	4,562	763	131
CONSTRUCTION PAPER & BOARD	**1,131**	**450**	**244**	**335**	**87**	**14**

END PRODUCTS	1985 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**17,799**	**1,980**	**3,387**	**8,466**	**2,444**	**1,521**
TOTAL PAPER	**4,889**	**164**	**1,582**	**311**	**1,475**	**1,389**
NEWSPRINT	1,419	—	1,384	—	35	—
PRINTING, WRITING & RELATED	1,038	4	—	10	622	401
PACKAGING & IND. CONVERTING	271	14	7	91	139	20
TISSUE	2,161	146	191	210	679	934
TOTAL PAPERBOARD	**11,739**	**1,347**	**1,559**	**7,802**	**878**	**152**
KRAFT, BLEACHED & UNBLEACHED	1,632	—	—	1,540	72	20
SEMICHEMICAL	1,602	—	—	1,602	—	—
RECYCLED	8,505	1,347	1,559	4,660	806	132
CONSTRUCTION PAPER & BOARD	**1,172**	**469**	**246**	**353**	**90**	**14**

END PRODUCTS	1986 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**18,109**	**1,991**	**3,388**	**8,680**	**2,468**	**1,583**
TOTAL PAPER	**4,999**	**164**	**1,583**	**319**	**1,511**	**1,411**
NEWSPRINT	1,419	—	1,384	—	35	—
PRINTING, WRITING & RELATED	1,036	4	—	10	621	401
PACKAGING & IND. CONVERTING	275	14	7	94	140	20
TISSUE	2,259	146	192	215	715	990
TOTAL PAPERBOARD	**11,938**	**1,357**	**1,551**	**8,007**	**868**	**156**
KRAFT, BLEACHED & UNBLEACHED	1,659	—	—	1,565	73	22
SEMICHEMICAL	1,614	—	—	1,614	—	—
RECYCLED	8,666	1,357	1,551	4,828	795	134
CONSTRUCTION PAPER & BOARD	**1,182**	**470**	**254**	**354**	**88**	**16**

Totals not adjusted for rounding differences

Recyclable paper for molded pulp included under Construction Paper & Board as follows: 1982, 187,000 tons; 1983, 180,000 tons; 1984-86, 203,000 tons.

announced capacity expansion

NEW MILLS & MACHINES

Expansion projects include new paper, paperboard and wood pulp mills and new paper and paperboard machines in existing mills. These projects have been publicly announced by the managements of the companies concerned and are included in the capacity estimates reported in this survey. Estimates also include confirmed expansion projects that have not been publicly announced which, in keeping with the confidential nature of the survey, are not included in this listing.

PROJECTS INCLUDED IN SURVEY ESTIMATES

Thousands short tons

Grade	Annual Capacity	Proposed Start-up	Company & Location
Newsprint	225	1983	Augusta Newsprint Company Augusta, GA
Coated Groundwood	200	1982	Mead Corporation Escanaba, MI
Coated Groundwood	170	1982	St. Regis Corporation Sartell, MN
Coated Groundwood	175	1982	Weyerhaeuser Company Columbus, MS
Coated Free Sheet	200	1983	Scott Paper Company Skowhegan, ME
Uncoated Free Sheet	150	1983	Champion International Corporation Courtland, AL
Uncoated Free Sheet	160	1984	Crown Zellerbach Corporation Camas, WA
Uncoated Free Sheet	350	1984-1985	International Paper Company Southern U.S.
Uncoated Free Sheet	215	1984	Union Camp Corporation Eastover, SC
Cotton Fiber	3	1982	Portals Limited Hawkinsville, GA
Tissue	N.A.	1984	Fort Howard Paper Company Green Bay, WI
Tissue	N.A.	1985-1986	Fort Howard Paper Company Muskogee, OK
Tissue	14	1984	Tagsons Paper Incorporated Mechanicville, NY
Tissue	65	1982	Wisconsin Tissue Mills Incorporated Menasha, WI
Unbleached Kraft Linerboard	280	1985	Independent Kraft Corporation Tuscaloosa, AL
Unbleached Kraft Linerboard	200	1982	Weyerhaeuser Company Valliant, OK
Semichemical Paperboard	210	1983	MacMillan Bloedel Incorporated Pine Hill, AL
Bleached Sulphate Pulp	260	1986	Champion International Corporation Quinnesec, MI
Bleached Sulphate Pulp	355	1984	Leaf River Forest Products Incorporated New Augusta, MS

PROJECTS ANNOUNCED AFTER SURVEY CUT OFF DATE

Unbleached Kraft Linerboard	83†	1985-1986	The Chesapeake Corporation of Virginia West Point, VA

N.A.—Not available.

† Net increase in 1986 (see Commentary text Unbleached Kraft Linerboard)

Practical Maximum Capacity: Practical Maximum Capacity, as defined in this survey, is the tonnage of paper, paperboard or pulp of normal commercial quality that could be produced with full use of equipment and adequate supplies of raw materials and labor, and assuming full demand. No allowance is made for losses due to unscheduled shutdowns, strikes, temporary lack of power, etc., which cause decreases in actual production, but not in productive capacity. Capacity of paper machines which produce more than one grade is apportioned in accordance with actual production patterns or plans for future operation.

Capacity is reported in short tons of net finished paper and paperboard and air-dry (10% moisture content) pulp. Shrinkage of bleached or semibleached pulp is taken into account.

Annual practical maximum capacity—includes changes in capacity only for the portion of the year in which they are actually effective.

Year-end practical maximum capacity—assumes that all changes in capacity are in effect from the first day of the year in which they occur.

New Machines and Net Improvements: Capacity increases or decreases are shown in two main groups: New Machines and Net Improvements.

New Machines—are defined as machines purchased or to be purchased from equipment manufacturers. Consequently, capacity changes resulting from transfers of paper machines from one mill to another are shown under Net Improvements.

Net Improvements—are defined as net changes resulting from modernization of machines, dismantling old machines, shifts in grades, etc.

Capacity increases from new machines are shown under New Machines for the first two years of operation (including the year of installation). Any additional capacity realized in a third or subsequent year is shown under Net Improvements.

Market Pulp Capacity: Market pulp in this survey is defined as wood pulp produced in the U.S. for sale to pulp consumers. It excludes pulp for use or consumption by a producing mill or for shipment by a producing mill to other mills within its supply region which it owns, controls or with which it is affiliated. (Shipments to owned mills outside the U.S. are defined as market pulp.)

PAPER GRADES

Newsprint: Paper used chiefly in the printing of newspapers, made largely from mechanical pulp and weighing not less than 28½ pounds nor more than 35 pounds (24 × 36 – 500).

Uncoated Groundwood: Uncoated papers containing more than 10% groundwood or other mechanical pulps in their furnish, excluding newsprint.

Machine and Off Machine Coated: Bleached papers with a coating weight of at least 2½ pounds (25 × 38 – 500) on either side and at least 50% of the coating consisting of clay (Kaolin).

Coated Groundwood: Coated papers containing more than 10% mechanical pulp (mostly stone groundwood and/or refiner) in their furnish.

Coated Free Sheet: Coated papers containing 10% or less mechanical pulp (mostly stone groundwood and/or refiner in their furnish).

Uncoated Free Sheet: Bleached uncoated printing and writing papers containing not more than 10% groundwood or other mechanical pulps in their furnish; i.e., offset, tablet, envelope, business papers (bond, ledger, mimeo, duplicator) form bond, cover and text and related papers.

Bleached Bristols: Includes tabulating index, tag and file folder, coated cover bristols, and uncoated bristols (index, printing, and postcard).

Cotton Fiber: Papers containing 25% or more in their furnish of cotton, cotton rags, cotton waste, linters, linter pulp, flax, or similar fibers.

Thin Papers: Includes carbonizing, condenser, cigarette, bible, and similar papers.

Packaging and Industrial Converting: Wrapping paper, shipping sack, bag and sack other than shipping sack, and other converting papers—18 pounds and over.

Unbleached Kraft: Paper containing more than 80% unbleached sulphate wood pulp. Wrapping paper, shipping sack, grocers sack and other bag, and other converting papers—18 lbs. and over (24 × 36 – 500).

Bleached Packaging and Industrial Converting: Paper made for similar end uses as unbleached kraft, but made from bleached, and semibleached sulphate and unbleached sulphite pulps. Wrapping paper, shipping sack, grocers and other bag and sack, and other converting papers—18 lbs. and over (24 × 36 – 500).

Specialty Packaging: Paper and board of all weights and furnishes, usually used as protective packaging for food and other consumer products, such as bakery bags, fast food and frozen food wraps. Also includes glassine, greaseproof and vegetable parchment paper.

Special Industrial: Paper and board, of all weights, calipers and furnishes, designed for specialized end uses and manufactured to exact customer specifications; includes abrasive paper, electrical insulation, filter paper and similar grades. Does not include wet machine board.

Tissue: Includes sanitary grades: i.e., toilet, facial, napkin, toweling, sanitary napkin, wiper and special sanitary papers, and waxing, wrapping, wadding and miscellaneous grades.

PAPERBOARD GRADES

Unbleached Kraft Paperboard: Paperboard made from a furnish containing not less than 80% wood pulp produced by the kraft sulphate process.

Linerboard: Unbleached kraft paperboard manufactured for use as facing material when combining paperboard for conversion into corrugated or solid fiber boxes. Includes solid unbleached kraft linerboard, both Fourdrinier and Cylinder, mottled white linerboard and clay coated unbleached kraft linerboard.

Folding: Paperboard manufactured, such as clay coated unbleached kraft and bleached lined unbleached kraft backed, for conversion into folding cartons and beverage carriers.

Other: All unbleached kraft paperboard whose end use is not otherwise classified, such as board for a filler for solid fiber board to be fabricated into a shipping container, tube, can, drum, file folder, tag, automotive panel, etc.

Solid Bleached Packaging Paperboard: Paperboard made for use in packaging from a furnish containing not less than 80% virgin bleached wood pulp. Bleached bristols not manufactured for packaging are included in the proper bleached bristol classification under papers.

Linerboard: Solid bleached paperboard, either Fourdrinier or Cylinder, manufactured for use as facing material when combining paperboard for conversion into corrugated or solid fiber boxes.

Folding: Solid bleached paperboard for conversion into folding cartons, such as folding cartons for ice cream, butter, oleomargarine, frozen foods, bakery products, cosmetics, drugs, etc.

Milk Carton and Food Service: Solid bleached paperboard for conversion into milk carton, heavyweight cup, and round nested food container, plate, dish and tray, and for packaging for moist, liquid and oily foods.

Other: Solid bleached paperboard for conversion into packaging of blister pack, tubes and other products not classified above and for industrial products not classified under bleached bristols.

Semichemical Paperboard: Paperboard made from a furnish containing not less than 75% virgin wood pulp, the predominant portion of which is produced by a semichemical process.

Recycled Paperboard: Paperboard manufactured from a combination of recycled fibers from various grades of paper stock with the predominant portion of its furnish being recycled fibers: sometimes including a very minor portion of virgin fibers.

Linerboard: Recycled paperboard produced from a furnish containing less than 80% virgin kraft wood pulp and used as facing material when combining paperboard for conversion into corrugated or solid fiber boxes.

Corrugating Medium: Recycled paperboard produced from a furnish containing less than 75% virgin wood pulp and used as the fluting material when combining paperboard for conversion into corrugated boxes.

Container Chip and Filler Board: Recycled paperboard manufactured as a filler for solid fiber board for conversion into solid fiber boxes and other container chipboard (all chipboard under 26 pounds per 1000 sq. ft. manufactured for use as facing corrugated, solid fiber and single faced products which are used for interior packing, e.g., pads, partitions, dividers, layers and cushioning).

Folding: Recycled paperboard manufactured with bending quality for conversion into folding cartons (including unlined chipboard, kraft lined, white lined and clay coated).

Set-up: Recycled paperboard manufactured with non-bending specifications for conversion into rigid or set-up boxes (including plain chipboard, newslined, white vat lined).

Gypsum Wallboard Facing: Recycled paperboard manufactured for use as liner or facing on gypsum board, plasterboard (includes white, cream, gray, blue and all colors).

Other: Recycled paperboard with the same characteristics as paperboard for bending packaging or non-bending packaging but for non-packaging uses; plus recycled paperboard for end uses not otherwise classified, such as tag, file folder, tube, can, drum, match stem, tablet backs, toys, etc.

CONSTRUCTION PAPER & BOARD & OTHER

Construction Paper: Sheathing paper, felts (roofing felts, floor covering, automotive felts, deadening, industrial, pipe covering, refrigerator), asbestos paper and asbestos filled paper, flexible wood fiber insulation.

Wet Machine Board: Binders board, shoe board (e.g., counter board, heel board, innersole, etc.) automotive board, chair seat backing, coaster board, luggage, mill board, panel board, table top board, etc.

Insulating Board: A fibrous-felted homogenous panel made by interfelting of the fibers (e.g.,interior building board, wallboard sound deadening board, acoustical tile, exterior sheathing board, roof insulation board, trailer board, etc.).

WOOD PULP

Dissolving & Special Alpha: Highly refined bleached white sulphite or sulphate pulp with a high content of alpha (pure cellulose) fiber.

Sulphite Paper Grades: Paper grade pulps produced by the sulphite process. Bleached pulp must achieve a G.E. Brightness of more than 75.

Sulphate & Soda Paper Grades: Paper grades pulps produced by the sulphate or soda process. Bleached pulp must achieve a G.E. Brightness of more than 75. Semibleached pulp must achieve a G.E. Brightness of not less than 45 or more than 75.

Semichemical: High yield pulps produced with the use of some chemical agent such as neutral sulphite (N.S.S.C.); alkaline cook; chemipulp (defibrated pulp put through reaction chambers); chemi-mechanical pulp with a yield usually above 60%.

Mechanical: Fine textured, usually bright pulps, used in paper and paperboard manufacture and produced by mechanical rather than chemical processes.

Stone Groundwood: Pulp produced by grinding wood logs or bolts (usually 4 ft. in length) into relatively short fibers.

Refiner: Pulp produced by subjecting wood chips and/or residues to atmospheric or open discharge refining.

Thermomechanical: A high-yield pulp produced by a thermomechanical process in which wood particles are softened by pre-heating under pressure prior to a pressurized primary refining stage. Usually replaces or reduces the chemical pulp component in newsprint or groundwood papers.

WOOD PULP FOR CONSTRUCTION PAPER & PAPERBOARD

Coarse, often brown, pulps used in the manufacture of insulating board and construction paper. Also includes similar pulps if used in the manufacture of wet machine board. Excludes pulp for hard pressed board.

Stone Groundwood and Refiner: Pulps produced by the stone groundwood or refiner processes but used in the manufacture of construction paper and board.

Defibrated/Exploded: Pulps produced by subjecting wood chips to preheating and pressurized refining. Similar to the thermomechanical process except that operating variables produce an economical, coarse brown pulp, suitable only for construction paper and board.

Screenings: Rejects and off-quality screenings from all grades of wood pulp except dissolving.

FIBERS

Roundwood: Comprises roundwood bolts and logs (4 feet or longer, including tree lengths) brought to the pulpmill for chipping, or chips made from primary roundwood bolts and logs at a chipmill, remote from the pulpmill.

Forest Residues: All logging residues such as portions of bolts or logs less than the minimum diameter specified by the consuming mill and poles, saplings, slash, limbs, twigs, or portions of bolts or logs not regarded as merchantable in normal pulpwood or sawlog operations. May also include merchantable portions of trees that will not be used for higher value products. Chips made from forest residues.

Manufacturing Residues: All mill residues such as slabs, edgings, trimmings, cores, planer shavings, sawdust or other wood residues of a wood manufacturing process and chips made from these residues.

Other Fibers: Cotton linters, cotton linter pulp, textile mill waste and cuttings, rags, waste rope and cordage, bagasse, flax, straw, jute, esparto, kenaf and all other vegetable fibers used in paper and paperboard manufacture.

RECYCLABLE PAPER

Mixed Papers: Number 1 and 2 mixed papers, super mixed papers, boxboard cuttings, mill wrappers.

Newspapers: Number 1 news, overissue news, super news. Any grade to be used as a news substitute.

Corrugated: Old containers both corrugated and solid fiber, container plant cuttings.

Pulp Substitutes & High Grade Deinking: Includes ledger, tabulating cards, bleached sulphate shavings (unless used as a news substitute). Envelope and bleached sulphite and sulphate cuttings, coated book stock, news and publication blanks, kraft paper and bags and all other grades not classified above.

Print free grades are reported as *Pulp Substitutes* and printed grades, if deinked, are reported as *High Grade Deinking*.